S. ~~Prt.~~ Hrg. 98-222

NUCLEAR EMERGENCY PLANNING

HEARING

BEFORE THE

SUBCOMMITTEE ON
NUCLEAR REGULATION

OF THE

COMMITTEE ON
ENVIRONMENT AND PUBLIC WORKS
UNITED STATES SENATE

NINETY-EIGHTH CONGRESS

FIRST SESSION

APRIL 15, 1983

Printed for the use of the Committee on Environment and Public Works

U.S. GOVERNMENT PRINTING OFFICE
20-115 O WASHINGTON : 1983

S321-22

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NUCLEAR EMERGENCY PLANNING

FRIDAY, APRIL 15, 1983

U.S. SENATE,
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS,
SUBCOMMITTEE ON NUCLEAR REGULATION,
Washington, D.C.

The subcommittee met at 10:05 a.m. in room SD–406, Dirksen Senate Office Building, Hon. Alan K. Simpson (chairman of the subcommittee) presiding.

Present: Senator Simpson.

OPENING STATEMENT OF HON. ALAN K. SIMPSON, U.S. SENATOR FROM THE STATE OF WYOMING

Senator SIMPSON. Good morning.

Today we are going to consider the subject of emergency planning of commercial nuclear powerplants. Two years ago this month we had a hearing on this subject and found a number of problems in the implementation of section 109 of the fiscal year 1980 NRC authorization, that being the provision requiring emergency plans for newly licensed nuclear powerplants.

We have had nearly 3 years of experience with emergency planning, and in view of some problems that have developed since our hearing in 1981, I felt we ought to take a most careful look at whether emergency planning, as we see it working, is meeting the objectives established by Congress in 1980.

I am heartened by the fact that many of the problems identified in our 1981 hearing have been addressed. FEMA and NRC, together with the utilities, have made some significant progress in the area of emergency planning, that is, for operating nuclear powerplants. While the task is obviously not complete, we do now have approved emergency plans for 16 of the 53 sites and operating plants, preliminary plans have been prepared for all 37 of the remaining sites, 27 of which have been formally submitted to FEMA for review.

At least one exercise; which is the emergency drill, has been conducted at every one of the 53 sites, and finally, onsite emergency plans are now in place for all of the 76 operating reactors.

And yet I must admit I am disheartened with the status of emergency planning for nuclear powerplants that are currently under construction. It is in this area that recent developments are a cause of concern to me and both to those who were involved in the adoption of section 109 in 1980. Let me say that I would wish to see the basic emergency planning requirement of section 109 for new powerplants extended in order that we have in place a statutory requirement that the Commission issue no new operating licenses unless there is an adequate emergency plan.

As I interpret the 1980 authorization, the basic requirement has expired as of September 30, 1980. Beyond that, however, I really feel that a number of recent developments in this area have been stretched. The 1980 planning provision stretched far beyond what I think Congress contemplated in 1980 when it passed section 109.

While we all certainly envisioned that State and local governments would take an active role in assisting in the preparation of emergency plans, I really am quite convinced that the Congress did not intend that the role assigned to State and local governments should be misused for some of the purposes that we have recently seen.

In particular, I am most concerned by what I see to be as more free efforts—perhaps free and sometimes blatant—to use this process as a hammer swinging over the heads of the utilities, beleaguered enough as they are, for the apparent purpose of enacting concessions from utilities in exchange for cooperation in preparing emergency plans. I think concessions which, in many instances, might well appear to reasonable, appear at times to be totally unrelated to emergency plans.

If this is really where we are today in some instances, then the Congress, I think, needs to take some constructive action. So today's hearing is for the purpose of exploring those issues to determine whether the current statutes are sufficient to deal with the potential abuses that we have seen in certain isolated instances, in particular, to also discern whether the option of the utilities' submitted plan is really an available or workable option, and to determine what steps we might be required to take to further assure the effectiveness of the current emergency planning process.

So Chairman Palladino and members of the NRC, I welcome you all back again. It is always a pleasure to welcome you to the subcommittee.

I gratefully look forward to what you all have to say. It is very important in this process to have the diversity of your views, and none of you have ever been reluctant to share that, ever.

So please proceed.

STATEMENT OF HON. NUNZIO J. PALLADINO, CHAIRMAN, NUCLEAR REGULATORY COMMISSION, ACCOMPANIED BY VICTOR GILINSKY, COMMISSIONER; JOHN F. AHEARNE, COMMISSIONER; THOMAS M. ROBERTS, COMMISSIONER; AND JAMES K. ASSELSTINE, COMMISSIONER

Mr. **Palladino**. Thank you, Mr. Chairman.

It is a pleasure to appear before you and your subcommittee to discuss emergency preparedness for nuclear powerplants. With me today are my fellow Commissioners, Commissioner Gilinsky, Commissioner Ahearne, Commissioner Roberts, and Commissioner Asselstine. In addition we have the Executive Director for Operations, and members of several of our program office staffs.

I will begin by presenting a brief history of emergency preparedness near the time of the accident at Three Mile Island in March 1979. In November of 1976 a joint Nuclear Regulatory Commission and Environmental Protection Agency task force was convened to explore emergency planning issues. After 2 years of study, the task force issued a draft report for public comment in December 1978. The comment period was extended after the TMI accident to incorporate additional public views resulting from the accident. After consideration of comments, a final task force report NUREG-0396 was issued.

As a result of the accident at Three Mile Island, and the recommendations from the joint NRC/EPA task force, it became clear that onsite and offsite emergency preparedness as well as proper siting and engineered safety features were needed to protect the health and safety of the public. In recognition of the need for more effective emergency planning and preparedness shown in the accident at TMI and the task force recommendations, the NRC amended its regulations on emergency preparedness planning in order to assure that adequate protective measures can and will be taken in the event of a radiological emergency.

The final rule, effective November 3, 1980, specified that an applicant for or a holder of an operating license was required to submit plans covering onsite and offsite emergency preparedness. The NRC must determine whether the onsite and offsite emergency plans provide reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency.

The NRC determinations are based on a review of the Federal Emergency Management Agency findings and determinations as to whether offsite emergency plans are adequate and capable of being implemented, and on the NRC assessment as to whether the utility's onsite emergency plans are adequate and capable of being implemented.

A significant feature of the rule on emergency planning is that planning considerations must be extended to emergency planning zones, called EPZ's, which consist of an area of about 10 miles in radius for exposure to the radioactive plume that might result from an accident in a nuclear power reactor and an area of about 50 miles in radius for food that might become contaminated. The 10- and 50-mile EPZ's were a result of the NRC/EPA Task Force effort that I discussed earlier. Additionally, the final rule sets forth 16 emergency planning standards for onsite and offsite emergency organizations within the emergency planning zones.

On July 13, 1982, the Commission amended its regulations to clarify that emergency preparedness exercises are part of the preoperational inspection and thus required prior to operation above 5 percent of rated power, but not for a licensing board, appeal board, or commission licensing decision.

For issuance of operating licenses authorizing only fuel loading and low power operation up to 5 percent of rated power, no NRC or FEMA review, findings, and determinations concerning the State or adequacy of offsite emergency preparedness shall be necessary.

Following the issuance of a Presidential Directive assigning FEMA lead responsibility for offsite emergency preparedness around nuclear facilities, the NRC and FEMA negotiated a memorandum of understanding. This MOU established a framework of cooperation in radiological emergency response planning matters so that our mutual efforts are directed toward more effective plans and related preparedness. Measures at and in the vicinity of nuclear facilities.

According to the MOU, FEMA coordinates all Federal emergency planning and response, makes findings and determinations as to the adequacy of offsite plans and whether these plans are capable of being implemented, and also makes these findings and determinations available to the NRC. The NRC reviews the FEMA findings and determinations for the purpose of making determinations on the overall state of emergency preparedness.

Beginning in late March 1981, an appraisal program for onsite plans and coordination with offsite organizations was started to verify the satisfactory implementation of the upgraded emergency plans and procedures at all operating reactor facilities. The program was directed toward evaluating the capabilities and performance of licensees and identifying and correcting major weaknesses in emergency preparedness rather than identifying noncompliance. As of April 1982, appraisals have been completed at all operating reactor facilities as well as facilities for eight near-term operating licenses.

Full-scale exercises involving participation by licensees and State and local governments have been conducted at all operating reactors. Exercises conducted by licensees jointly with offsite organizations will be observed by the staff on a continuing basis. A complete appraisal and full-scale exercise will be conducted before full power operation.

This concludes the Commission's prepared remarks, Mr. Chairman. We have completed the responses to your questions and have delivered them for inclusion in the record. We will be pleased to answer any question you may have. However, I should point out that in referring to specific cases, such as Shoreham, TMI-1 Restart, Zimmer, Seabrook, and the like, we are dealing with matters that are under litigation before the Commission.

Hence, we should not be discussing the details of these cases because the Commission will ultimately be called on to judge the issues on the merits, and should not be subject to the charge of having prejudged the merits of the cases.

Mr. Chairman, that concludes our remarks. We will be pleased to answer questions.

Senator SIMPSON. Thank you very much. I understand the caveat there at the end, and I think we can skirt those sensitive issues and still get to some of the things I hope we can get information on.

As I understand it, if the utility submits a utility emergency preparedness plan to the NRC under section V of the fiscal year 1982-83 authorization, it is the NRC's intention to send that plan right over to FEMA for review.

FEMA, on the other hand, has apparently indicated that it will only review emergency plans submitted by a State, suggesting that it would not review any utility prepared plan.

Do not the positions taken by the NRC and FEMA essentially frustrate very clearly the objective of section V effectively, precluding a utility from ever obtaining a determination of whether its submitted plan can provide assurance that the public health and safety will, indeed, be protected?

Mr. **Palladino** Well, Mr. Chairman, the submittal of a utility plan to the Commission we would be sending to FEMA for review. We count on them as the experts on offsite emergency planning.

I believe, in view of the section V provision, that they would cooperate in trying to give us a response.

The question is going to be the practicality of invoking such a utility plan in the absence of State or local participation.

Commissioner Ahearne would like to comment.

Senator **Simpson**. Yes.

Mr. **Ahearne**. Senator, to the best of my knowledge, what FEMA has told us in the past is that they would not be looking at a county plan because they were dealing with States, and so their position was that county plans should be submitted to the States, and they would deal with the State.

We have not yet had an instance where there was no plan other than the utility plan, so that we have not really faced specifically the issue that you raise.

Senator **Simpson**. I guess I am wondering when the utility plan will get reviewed. How will that occur?

Mr. **Palladino**. It is my understanding as of now, we do not have a proposed utility plan, and so——

Senator **Simpson**. If you get one, how will you handle it?

Mr. **Palladino**. Well, as Commissioner Ahearne has indicated, we do not have experience in this area, but our plan would be to submit them to FEMA for their comment and review, and then, based on their findings, we would have to make an overall determination as to whether or not the public health and safety would be adequately protected.

Senator **Simpson**. Commissioner Ahearne says they will review a State——

Mr. **Ahearne**. Senator, my point had been that the only issues we had raised with FEMA in the past have been, why don't you deal with the counties?

There were particular instances where there seemed to be some difficulty in getting the county and State to work together. So we asked them, "why don't you work directly with the county?" Their response was, "we will deal with the States and it is up to the State to deal with the county." We had not faced the issue in the past, and we haven't exactly faced it yet, where it is only a utility plan that is available. So that the Commission's current approach would be as the chairman just described it: if we do get a utility plan submitted to us in the absence of a county or State plan, we will send it over to FEMA and ask them, "well, here is what we have; what are your comments and review on this?"

I think the question you have raised is, is it possible that FEMA will say, "Sorry." But we have not faced that yet because it has not happened.

Senator **Simpson**. I think that is very possible. According to——

Mr. **Asselstine**. Mr. Chairman?

Senator **Simpson**. Yes.

Mr. **Asselstine**. I would just add that I think the point you have just raised is a good one—the coordination problem that we have between NRC and FEMA. And even though we do not have that situation in front of us yet, we have made a proposal on how we would propose to deal with the utility plan. Perhaps it would be a good idea for us, before we are in that situation, to coordinate with FEMA and determine whether or not FEMA is prepared to cooperate along the lines that we have planned out.

Senator SIMPSON. I think that is a very valid observation, because if you agree that FEMA will not review the plan, then it seems to me the decision to send it to FEMA is effectively a dead end stop in the process under the current regulations; is that not correct?

Mr. ASSELSTINE. That would appear to be the case.

Senator SIMPSON. It certainly would.

Let me go on. According to some recently issued NRC licensing board provisions——

Mr. PALLADINO. Mr. Chairman?

Senator SIMPSON. Yes.

Mr. PALLADINO. I wonder if we might not call on Mr. Dircks to indicate the kind of discussions that have existed between the staff and the FEMA on this question of review between the utility plans affecting the need for that.

There have been discussions, and it might be helpful to clarify the situation. With your permission, I would like to call on Mr. Dircks.

Senator SIMPSON. Please.

Mr. DIRCKS. My name is William Dircks. I am the Executive Director for NRC.

I have had telephone conversations with FEMA on this issue. We discussed what would happen if a utility plan came in to us. In our reaction, our tentative plans would be to ship the plan to FEMA.

FEMA responded that they would accept the plan and they would review it from the planning aspect, since it would be difficult to review how would it be implemented at the State and local level. But they would review it. They did indicate that they would review the feasibility of the plan.

Senator SIMPSON. As you know, under section V, the NRC must find that the utility prepared plan will provide reasonable assurance that public health and safety is not endangered by operation of the facilities concerned.

What steps must be taken by a utility in order to implement the utility prepared plan, and is it reasonable to expect that those steps could be carried out if the utility were called upon to do so?

Mr. PALLADINO. Well, Mr. Chairman, the detailed steps, I am not sure, have been exactly prescribed. I think their first step, and one which I believe they have already taken, has been to send it to the State and see if the State will submit it, but the State, I gather, will not.

Then I think they have the opportunity under section V to submit it directly to the NRC, and then we would pick up the actions indicated.

Senator SIMPSON. If, in fact, the utility prepared plan is determined not to be an acceptable substitute for a State or a local plan, does that essentially mean that the participation of either the State or the local government must be guaranteed before the NRC can issue an operating license to the plan? Or is there an alternative to State or local implementation?

Mr. Palladino. I will give you my impression. I am not sure it, perhaps, is complete.

But I believe we do require some offsite plan that we find assurance that it provides reasonable assurance to public health and safety whether it is a State, local, or a utility plan.

What is the difficulty, I think, with the utility plan is that lacking local participation and State participation, it would be very difficult to get a workable plan.

Now, I could, in the extreme, envision steps that a utility might take. But that is not the spirit in which the emergency planning process has gone on. The process has been to work closely with States and local officials, and I think that this still needs to go on.

One of the suggestions that I would be inclined to make on the consideration of legislation is to provide FEMA with additional mechanisms whereby they might have a better opportunity to promote the cooperation where there is concern on the part of the utility.

Mr. Ahearne. If I could take a step back in addressing that question, Senator, and go back to comments which you made in your opening remarks and contrast that with the chairman's opening. It wasn't accidental that the chairman, in his testimony, did not mention in the list of history the congressional authorization.

You had pointed out that the congressional authorization had expired. The Commission's emergency planning rule was independent of the congressional authorization. We took our actions because we concluded that emergency planning requirements were necessary in order to provide the adequate protection to the public health and safety.

If the Congress had said, "You must do more than our rule," or "You can only do less," then it would have had an effect. But as it was, it was separate.

So, consequently, we have to look at any emergency planning situation as to whether or not it provides the adequate protection to the public health and safety. Some of the specific questions involved in, "Is a utility plan acceptable?"

What would we do to make it acceptable, I think, can evolve quickly into a detailed question of the Shoreham plan. And that, I think, at least on our side, we have to stay away from, because it is one thing to describe in theory how could we make a plan acceptable in the absence of the State and local, because a theory, then, can address, "Is it because the State and local governments just are refusing to participate?"

But any specific case has to start with the addressing, "Is emergency planning possible in that region?"

It is theoretically possible that the emergency plans cannot be done, in which case the lack of a State or local plan could merely represent, "You cannot do it there."

We haven't had the detailed examination of the Shoreham situation, so we cannot say whether that is the case in general theory.

We are not experts in emergency planning in the NRC, and I would think that what could be done in the absence of a State or local plan in general would be a question that FEMA would be much more able to answer because they are, supposedly, the experts in emergency planning.

Senator SIMPSON. Let me ask you this since you speak of the authorization: Since the authorization has expired, isn't it true that there is no statutory requirement for emergency planning?

Mr. AHEARNE. There is no—obviously, lawyers will have, perhaps, different views.

Senator SIMPSON. I know they will.

Mr. AHEARNE. My view is that we have the requirement under the Atomic Energy Act to insure that there is adequate protection for the public health and safety.

Senator SIMPSON. I am well aware of that.

Mr. AHEARNE. There is no statutory, in terms of explicit emergency planning, but I would argue implicitly that it stems from that, that our effort in emergency planning is our judgment, after the rulemaking, that it is required.

Mr. ASSELSTINE. Mr. Chairman, I would agree with what Commissioner Ahearne just said. The fiscal year 1980 Authorization Act did impose, for the period covered by the authorization, an explicit requirement that there would have to be an adequate plan.

When the authorization expired, there was no longer that explicit statutory requirement. But because the Commission's regulations on emergency planning are based upon the Atomic Energy Act responsibility, there is at least that implicit statutory requirement based upon our judgment that a plan and adequate preparedness are required in order to satisfy the more general standards for licensing under the Atomic Energy Act.

Senator SIMPSON. Certainly, there really is nowhere else to go but where you have gone, because without that, it would have serious problems in being, because that is really the mission; and the public health and safety, which obviously has a great deal to do with emergency planning.

But there is no statutory requirement at the present time for it.

Mr. ASSELSTINE. That is correct.

Mr. AHEARNE. That is true, Senator, but there is no statutory requirement for the vast bulk of our regulations.

Mr. PALLADINO. Except for——

Senator SIMPSON. For the vast what?

Mr. AHEARNE. The vast bulk of our regulations.

Most of our regulations do not have any explicit statutory requirement. They are all linked to this general Atomic Energy Act requirement.

Mr. ASSELSTINE. Mr. Chairman, I wonder if I might comment as well on the workability of the utility plan.

Senator SIMPSON. Yes.

Mr. ASSELSTINE. I agree with what Commissioner Ahearne has said; that is, that in the last analysis, in particular cases, we will have to look at the factual situation as presented in those particular cases.

But I do think that as a general proposition, one does not have to be an expert in emergency planning or preparedness to recognize that in large part, our requirements and these plans depend upon the active participation and involvement of governmental officials, whether they are State or local or a combination of the two.

I think it is going to be very difficult—as I think the chairman recognized earlier—to find an adequate level of preparedness if you simply don't have, for one reason or another, the participation and involvement either in the planning or in the execution of plans by State or local government officials.

Mr. PALLADINO. Mr. Chairman, I might point out that with regard to the question you had raised on the statutory authority, the Commission and EPA have been working on the question of emergency planning even before the Three Mile Island accident.

Senator SIMPSON. I am aware of that.

Mr. PALLADINO. It confirms that the Commission had viewed this as an important activity even before the statutory authority was granted.

Mr. GILINSKY. Mr. Chairman, I want to say that I agree completely with Jim Asselstine's description of the problem.

As a practical matter, there just isn't any way the utility can compensate for lack of participation of all of the surrounding government bodies.

Senator SIMPSON. How many of you think that a utility prepared plan might, in some circumstances, be able to substitute for no State or local plan?

Mr. PALLADINO. Well, Mr. Chairman, I could—we could probably begin to speculate on what a utility plan might introduce to make it workable.

I hesitate to do that because I am not trying to suggest to the utilities what they ought to do or what they ought not to do, because any comment I would make would be completely speculative.

I hate to make a prejudgment that under no condition would a utility plan be acceptable, because I could conceive of some conditions, but that is where I was trying not to speculate on.

If you would like me to, I will speculate, but I think we better not.

Senator SIMPSON. Go ahead. I would love to hear you speculate.

Mr. PALLADINO. I will speculate with a caveat.

Senator SIMPSON. That sounded like a seafood combination. OK.

Mr. PALLADINO. The caveat I want to have you understand is that I still believe it is very difficult for a utility to introduce a plan that would be workable, but I could conceive of circumstances such as, for example, they may say, "Well, if the local officials won't provide policemen at intersections, we might deputize, hire people, we maybe will deputize people as Federal marshals or whatever."

I am not proposing that. I am speculating that that kind of avenue is available to the counties.

But I don't think it is in the spirit with which we have addressed the emergency preparedness and planning.

We have addressed them with the idea that we do need and we do want participation of the county and State people.

There may be other areas in which bus drivers be hired by the utility and provided to get people out if the local authorities would not do it. These are the kinds of things I would say we would speculate on.

Again, I must say, that is not the spirit in which we would try to approach this whole problem, and that is why I think the role of

FEMA in bringing these parts together should be strengthened if there is any way we could do it.

Senator SIMPSON. I think we have probably spent too much time in Congress laboring on the horror story or the minority point or the special example, but, I think, obviously, all of us would agree that any county in which one of these facilities is located will surely want to be, in good faith, doing some emergency planning, as will a State.

There are some aberrations to that thinking, and we will address those later.

Certainly counties and States are all responsible people and they are going to do something about emergency planning. Those that choose not to, then, that leaves it to what we put in the law; that the utility can go that way, and that is the issue, then, when the utility does that, should we extend section V? That is part of it.

But if the utility plan can never be effective, then you would wonder why we should extend section V, and that was discussed among you the last time, I believe. So that is what I am looking at.

If we are going to find a situation where the use of that type of thing is really and obviously an attempt to rid themselves of the facility when the utility has picked up a construction permit and an operating license and all the rest and then, suddenly, by a whim of whatever, that is the end of that, I don't think that was Congress intent whether you happen to be "pro-nuclear" or "anti-nuclear."

But if the NRC were to determine that a utility submitted plan is not an acceptable substitute and either the State or the local government must be prepared to implement the plan, would the NRC be responding any differently to a situation where the local government is refusing to implement the plan because, say, the plan fails to meet the NRC's requirements or the local government simply refuses to implement the plan, even though it does feel that it meets all the NRC's requirements?

Mr. PALLADINO. I am not sure I got the full scope of the question. Let's see if I understand your question that you asked.

If there are no utility plans; if there are no State plans——

Senator SIMPSON. If there are no county plans.

Mr. PALLADINO [continuing]. County plans; if there are no State plans——

Senator SIMPSON. And no State plan.

Mr. PALLADINO. And did you add that if there are no utility plans?

Senator SIMPSON. No. I said that if the NRC determines that a utility plan is not an acceptable substitute and that either the State or the local government must be prepared to implement the plan or assist in it, is your response going to be different where the local government has failed to do so because the plan fails to meet the NRC requirements or the local government is simply refusing to implement the plan even though it does meet the NRC requirements?

Mr. PALLADINO. If there is a plan that meets the NRC requirements, I think the NRC would have to review it.

If there is no plan, no plan submitted, it is not clear what leverage, other than continuing negotiation and working with the parties, what alternative we have other than that.

Maybe some of my colleagues have some additional comments.

Senator SIMPSON. I guess it does go to the motivational factors of the local government which is not really your issue.

Mr. ASSELSTINE. Mr. Chairman, I was just going to say that as far as the question of preparedness goes—that is, can the plan work in the absence of the State and local government's involvement—if I understood your question, you were basically saying, "Does it matter in terms of our judgment—the one we have to make—what the motivation is of the local government?" I think that is really a separate question.

The question of whether the plan is capable of being implemented and can be properly implemented in the absence of State and local participation, I think, really is a separate question from the motivation of the State or local governments—whether they are doing it out of a sincere belief that the plan is inadequate and fails to meet our requirements or whatever requirements they believe are appropriate, or whether they are doing it for some other reason.

Senator SIMPSON. Yes?

Mr. AHEARNE. Before I comment, Senator, could I clarify one piece of your question? It wasn't clear to me, then, which plan existed in your question.

Senator SIMPSON. Well, there is no county plan and no State plan, and you are looking at a utility plan is what I am saying.

Mr. AHEARNE. There is a utility plan?

Senator SIMPSON. Yes.

Mr. AHEARNE. I think, then, the question really goes back to whether the judgment of both after FEMA has looked at it and we looked at it, on whether it can actually be implemented. Is it an adequate plan? Would it supply the adequate preparedness, and could it be implemented?

Theoretically, one could see a situation where you might conclude that it could be.

Senator SIMPSON. And then you meet the mission that is required if you have no county and no State plan?

Mr. AHEARNE. I think theoretically, yes, you can, because one has to have an adequate plan for emergency preparedness.

Senator SIMPSON. Then my question is renewed: How many of you feel that a utility plan alone might, in some circumstances, be able to substitute for no State or local plan?

Mr. AHEARNE. I think the difference I am trying to make is that what we have to look at is an emergency plan. It is not the label that sits on top of it, State X, county Y, company Z. It is an emergency plan to handle emergencies around a particular facility.

The question that we ask FEMA is, "Is this a good plan? Can it be implemented?" And then we make our overall judgment.

Theoretically, it is independent of who provides it. Now, practically speaking, obviously, we all feel that it is much easier, much more likely that if all—if everybody is cooperating in the State, the county or the local authority to get to that successful plan. In all of the cases in which that has already been done, that is the circumstance. It doesn't mean that theoretically it can't be done, and I agree with the chairman's description. That was a very good summary of the kinds of problems that we might face, and looking, forecasting future decisions is very difficult because it is very hard to narrow down and constrain all possibilities.

Senator **Simpson**. Jim, did you have something?

Mr. **Asselstine**. One quick point. I think Commissioner Ahearne is right that there really are two issues involved here: One is, is this document itself an adequate plan? Does it lay out the steps that need to be taken?

The second question is the one that, I think, State and local involvement really relates to; that is, is this plan capable of being implemented? Will it work? And that is the question where I think it is very, very difficult to get a positive answer on that one if you have a State and local government saying it simply won't pariticipate.

Senator **Simpson**. Yes?

Mr. **Gilinsky**. This isn't a theoretical exercise. A plan, a workable plan, involves a commitment of governmental authorities to carry out certain actions in emergencies, and if there isn't that commitment, there is just no way in the world that a utility plan can compensate for it.

Mr. **Palladino**. I have not accepted that judgment.

Mr. **Roberts**. Neither have I, but you have to look at each individual circumstance, but I am not prepared to say that categorically, in no circumstance could a utility plan not provide that. I would have to look at each case.

Mr. **Gilinsky**. I want to stress, the question isn't whether the plan is a utility plan or State prepared plan, but will the government authorities participate? If they are not going to participate, unless you are talking about a completely unpopulated area, then the utility plan simply cannot make it.

Mr. **Palladino**. I think we should separate the planning from participation. I think—and it has been my experience—that in emergencies, local authorities do participate to the best of their ability. I agree that without a plan, perhaps they cannot be as effective as they can with a plan.

But I think we ought to separate the question of participation in a planning process and a preparedness process, and a willingness of local officials to carry out their duties in the time of an emergency. I think they are two different questions, and even when there may be a feeling that they can't develop a plan, that doesn't necessarily rule out that they would not do their job in an emergency.

Mr. **Gilinsky**. But if they haven't adopted that plan, if they haven't exercised that plan, then it is just not a workable proposition.

Senator **Simpson**. I understand clearly what you are saying.

Mr. **Palladino**. I should point out, though, that FEMA handles, and then the local authorities throughout the United States do handle many, many emergencies. So they are not without some general plans. But I do agree that what we are trying to do is get some planning and of course, to anticipate the situation better, make sure that people are properly trained and have the proper surveying equipment and that everybody is prepared to do their duty.

Senator **Simpson**. Let me ask several other questions: If the NRC were to find that the only way to insure effective implementation of an emergency plan is by the cooperation of either the State or local governments or, certainly, preferably both, would the NRC be prepared to suspend a utility's operating license if, at some point during the lifetime of the facility, a county changes its mind and decides that it would not implement the emergency plan and that the county position is then supported by the State?

I am asking, does the NRC, in making its continuing finding that an emergency plan can and will be implemented, essentially have to find that the State and local governments are continually willing to accept the plan?

Mr. **Palladino**. So far, I think there has been very good cooperation through the country on not only developing plans, but also participating and exercising and demonstrating their continued willingness to participate.

Senator **Simpson**. Yes.?

Mr. **Ahearne**. You asked a question basically: If we conclude that a particular provision is necessary to meet our regulation and that provision can't be met, then would we insist on, our regulation being met? That is really what your question is, because, you see, what you are really asking is, in our regulations, we require certainly, some provision.

Usually in our regulations, whenever we require a provision, we have also a way of waiving, an exemption category. But if we were to conclude that there is no way that you can meet that provision and there is no waiver that can be granted to meet that provision, then we would have the situation where one of our regulations which we require the plant to meet cannot be met, and, then, I think, the Commission would cite it. Since you cannot meet that regulation, which is required, then you can no longer operate.

But that is true no matter what the provision is. In emergency planning, in emergency core cooling, in operators, it is an issue that it is something that if we conclude the regulation cannot be met and it cannot be met, we pull the plug.

Senator **Simpson**. Many of these county and State agencies are political bodies and the voters have various philosophies, and those who were there when they started it, and seemed to embrace it, were then replaced by those who do not embrace it, and figure out that there is a particular way to carry out their mandate that all of us seem to have and say that, "There is a way to stamp that operation out. We are just going to get rid of emergency planning. We are not going to have it, and we are not going to implement it as it has been implemented."

Then, I am saying, does the NRC, by regulation or just by reality, knowing that we cannot have these facilities without emergency planning, are we then going to allow these State and local governments to change their minds and then lead to what could be, under our law, a suspension of something that came all through the hearing process before?

Mr. Gilinsky. Mr. Chairman, this isn't something that they can do casually, because there are constituents that have to pay the price in terms of paying for a facility that isn't operating.

Senator Simpson. A constituency pays the price?

Mr. Gilinsky. Well, the ratepayers.

Senator Simpson. Yes.

Mr. Gilinsky. If you are talking about a county and a State, you are talking about a fairly large unit, and, in effect, those people are going to have to pay.

Mr. Palladino. I think Commissioner Ahearne has a comment also.

Mr. Ahearne. Senator, let me say what I think the NRC should do in this kind of situation. I think our responsibility is to look and—and when I say ours, it could be our boards, our staff—to look at what is the actual situation with respect to emergency planning in that area. What would be required to meet our rules, and then to do as clear a job of presenting that situation.

For example, say, "here is a plant. Here is the kind of emergency planning that is required to meet our rules." For example, here is the area in which emergency plans must be done. Here are what the various studies have developed about can it be done, and here is what FEMA says can be done. And in the situation that you were proposing, which I conclude you are saying that, what if it was not that, for any really substantive grounds on the basis of emergency planning, it could not be done, but, rather, they just do not want the plant? I would hope that the political process that we have in this country would be able to then see that that is a sham argument that has been raised and that the conclusion would be reached either by the county or the State that, "Well, we can participate."

So, I would see it as our job and our side to make sure that the facts are correct.

Senator Simpson. It might well be that those are what my old profession lived on, and that is sham arguments.

Mr. Palladino. Mr. Chairman?

Senator Simpson. And certainly, sham argument would lead to extensive and expensive litigation. There is no question about that.

I understand what you are saying, but if we are going to have the process that you administer, which is a construction permit and an operating license and beginning and investing and putting in your $1 billion or your $2 billion and then getting to the point where there is a continuing approval or maybe the word "whim" would be better, whim of the local government organizations which are political in nature, that a single election resulting in a local decision not to implement an emergency plan would bring about the shutdown of a facility that has met every other test. How about a case where there are five counties and one decides that they do not care to participate any further and go through their little ritual of doing it in whether it is a sham or ostensibly authentic, what do we do in a situation like that.

Mr. Ahearne. But in that situation you just mentioned, I think, places greater reliance on the State. The fundamental question that the NRC has to keep asking ourselves is, is emergency planning required? As long as we reach the conclusion it is required, then we have got to try to work with this political system to insure that there is emergency planning done. For myself, I think that the best chance we have of overcoming any obstacles that arise, is to make it very clear what are the actual facts in the situation and what kind of emergency planning, really, does have to be required there, and can it be done.

Now, if you were to reach the conclusion that it is not a sham argument, that it really cannot be done after going through that analysis, then I think we would be required to say that the plan cannot operate. So far, we have not yet ever seen that kind of a situation.

Senator SIMPSON. There might be one or two.

Mr. PALLADINO. Mr. Chairman, you were touching on the concern, you have been touching on the concern, that I think is shared by a number of people. I certainly share it. You may find some opportunity to better improve that situation.

But so far, we are trying to work within the framework of what we find. I find it difficult to perceive of an attitude in the country—but then maybe I am politically naive, and I certainly am—that whereby somebody constructs a large building, gets all the necessary permits, gets all the necessary licenses, and then have the fire department say, "Well, that building, we are not going to—if there is a fire at that building, we are not going to handle it."

I think we have a little bit of that same thing, perhaps, going on here, but I think in the end, it has got to work out to where there must be a sound basis if such an attitude were to take place.

Mr. AHEARNE. Let me say——

Senator SIMPSON. Just a minute. Here.

Mr. ASSELSTINE. Mr. Chairman, I would just add that I agree with the comments that Commissioner Ahearne and Chairman Palladino have made. Our objectives ought to be to continue to make this process work. But I think we would be less than candid if we did not say, putting aside for the moment our differences on the question of the workability of the utility plan in the absence of a State and local plan, that there is at least the possibility—a very real possibility—of the disruption of plant operation. If you had a local government that simply decided it would not continue to participate, and that local government enjoyed the State's support, as long as we continue to require adequate emergency planning to protect the public health and safety, there is the potential that you could end up with a disruption in the operation of plants that met all the other requirements.

I think that potential at least exists, regardless of how far you go in discussing the workability of the utility plan and regardless of the motivation of local government.

Senator SIMPSON. I think you are praying for another opportunity. Go ahead, briefly.

Mr. AHEARNE. I live in a county. I have lived in a county for a long time, so I can recognize. If I were living in a county, and I say that my county government said, "This cannot be done," and the Federal people were saying, "Well, gee, it probably can be done," I would tend to believe the county, because I would have greater faith in them.

However, if there was an attempt to lay out the facts and the county said, "Well, we do not want to really look at the facts; just take our word for it. We would be uncomfortable with letting people see the facts of the situation," I think, as a county individual, I would then change my mind, and I would start pressing the county people. "If you do not want to let us see the facts, then you are probably trying to hide something from us. Let us see on what you base your judgment."

Senator **Simpson**. I think you all are somewhat politically astute, I do not believe that you are not.

But there is a political reality to the fact that a county rejects and then do you really believe, politically, that the Governor is going to override the county when the only thing he has got to lose is to irritate some utility people?

Now, that is a political reality. It is very real, because the people that are going to be complaining to the Governor to say, "Don't you overturn us, chum, because we vote here and we feel strongly about this." I don't know of any Governor that is going to overturn the county's decision. And there you have the deadlock of the county opposition plus the added layer, then, of the State opposition.

It seems to me that if that can result in the shutdown of an operating plant that has jumped through all the hoops and done it very realistically, very honestly and very openly under the existing framework, then maybe we need to take some legislative action.

I would like to have your response first.

Mr. **Palladino**. My response is, I think you have touched on a very important point. As a matter of fact, the one part of this process are the answers that I did not agree with is that we do not need any legislative action.

I really think that we do need some legislative action. I am a little bit hardpressed to recommend any except of giving some leverage to FEMA for negotiations. But I do not find it a conceivable mode of operation to stop a plant that has done everything that the law requires.

Mr. **Gilinsky**. Sir?

Senator **Simpson**. Yes?

Mr. **Gilinsky**. I am not an expert in financial matters, but someone is going to have to pay for that plant, and I expect it is going to be the ratepayers and the voters. I do not think they will get out of that. If they do, no one is ever going to provide money for that State again.

So I do not think that halting plant operations is something that can be undertaken lightly. Now, it is conceivable it could happen. To the extent that we made emergency planning a requirement and it requires the involvement of local and State authorities, we have, in a sense, given them a certain kind of veto power over the operation of that plant. That is just a fact.

But it is not a veto power that can be exercised lightly.

Mr. **Palladino**. Mr. Chairman, we have been talking about what the NRC would do and what FEMA would do and what legislative changes might be in order. Lacking resolution of all these issues in some logical way, I think in the end that it ends up in the courts where, I presume, the authority was placed in a situation where the county did not want to participate would—I am not a lawyer, so I probably will not say it right—but I presume they would sue in the courts. The county should fulfill its responsibility as the utility might claim.

So by one process or another, I expect the issue will have to be addressed. If there is a legislative way out, it may be very beneficial to do it so that these proceedings do not get protracted.

Senator SIMPSON. Two quick responses and then we have to go on.

Mr. AHEARNE. As a person in politics, I think the question you mentioned with respect to the case of the governor, if it were clear that the emergency plan could be done in that region and that the local-county people had blocked it for other reasons, and as Mr. Gilinsky said, the local ratepayer could then be socked for a huge amount of money, an increase, I would think that the Governor could make a very good case, that, I am going to step in and defend these local voters.

Senator SIMPSON. That is an interesting concept.

We will leave it to the chief executive of the State to wade through that little hypothetical.

Mr. ASSELSTINE. Mr. Chairman, I would just add that although there is a possibility that the situation that you describe could occur, I think in deciding that whether additional legislative action or other action is necessary, you need to think, too, about what the likelihood is that that would occur.

So far, I think we have been pretty fortunate. I think for the most part, State and local governments have recognized the importance of their authority, the importance for their involvement in this area, and I think the cooperation has, by and large, been fairly good. We still do not have a case before us in which something like the situation you described has occurred.

I also think that the existing provision in the authorization act does at least provide some leverage by at least permitting a utility to submit a plan and have that plan reviewed. My own view is that that provision does at least provide some leverage or inducement to the State and local government to fulfill their responsibilities and to be involved in the process.

So I guess I am, for my own part, I am not yet convinced that the need for some other action, or what that action ought to be, is yet clear enough to decide what to do.

Senator SIMPSON. I think your real test will be when the utility submits the first utility plan and the county has sat intentionally or unintentionally doing nothing, that will be the interesting test right there, because that will galvanize some activity.

I have some other questions.

Mr. PALLADINO. Can I make one more comment?

Senator SIMPSON. Yes.

Mr. PALLADINO. Mr. Chairman, if I understand correctly, that provision expires on September 30, does it not?

So you may want to consider extending it, at least—it is one point of flexibility.

Mr. ASSELSTINE. I would certainly support extending the provision.

Senator SIMPSON. You said that before.

Mr. **Asselstine**. I am consistent.

Senator **Simpson**. Being in here with this testimony.

Mr. **Ahearne**. There is a nuance difference.

Senator **Simpson**. Thank you very much, and I will submit these questions in writing. Again, you have been helpful, and your diversity itself is helpful to me.

Thank you.

Mr. **Asselstine**. Thank you, Mr. Chairman.

Senator **Simpson**. If we could now have Mr. Richard Krimm, the Assistant Associate Director of the Office of Natural and Technological Hazards from FEMA, please?

STATEMENT OF RICHARD KRIMM, ASSISTANT ASSOCIATE DIRECTOR, OFFICE OF NATURAL AND TECHNOLOGICAL HAZARDS, FEDERAL EMERGENCY MANAGEMENT AGENCY, ACCOMPANIED BY GARY JOHNSON, ACTING CHIEF, TECHNOLOGICAL HAZARDS DIVISION; SPENCE PERRY, OFFICE OF GENERAL COUNSEL; AND BILL JONES, ASSISTANT DIRECTOR, OFFICE OF EMERGENCY COORDINATION AND SUPPORT

Senator **Simpson**. Good morning, Mr. Krimm. How are you?

Mr. **Krimm**. Good morning, Senator, very well, thank you.

Senator **Simpson**. Will you introduce your colleagues?

Mr. **Krimm**. On my right is Gary Johnson, Acting Chief of the Technological Hazards Division which is responsible for the Radiological Preparedness and Coordinating Committee.

To my immediate left is Spencer Perry, FEMA's Office of General Counsel; next to him is Bill Jones who is the Assistant Director of the Office of Emergency Coordination and Support.

I have submitted a detailed statement for the record, and I would like to just maybe briefly discuss some of the high points of that statement, and I also have submitted the answers to the questions which the committee requested for the record.

Senator **Simpson**. Thank you.

Mr. **Krimm**. I am very pleased to be here today on behalf of the Honorable Louis O. Giuffrida, Director of the Federal Emergency Management Agency, to discuss radiological emergency preparedness and nuclear facilities.

Let me just talk a little bit about FEMA's role in radiological emergency preparedness. The major objectives of the Radiological Emergency Planning and Preparedness program are to enhance State and local government capabilities to plan for and respond to radiological emergencies at commercial nuclear powerplants, fuel cycle and material license holders, the Departments of Defense and Energy nuclear facilities, and transportation incidents involving radiological materials.

The primary emphasis of FEMA's activities are related to something commercial nuclear powerplants. There is really a twofold emphasis of the Radiological Emergency Planning and Preparedness program. First of all, there is Federal assistance to State and local governments in helping them with preparations of their plans, if they wish to, and this is carried out by the Office of Natural and Technological Hazards in the Technological Hazards division of FEMA. There is also a Federal response to planning and preparedness in the Office of Emergency Operations, and this is involving all of the other Federal agencies who would respond to a major incident at a nuclear facility.

The critical link between the radiological preparedness and planning program and the State and local governments is provided through FEMA's 10 regional offices, which are located in the 10 regional cities throughout the country.

During the past 2 years since we last testified, the staffing for the Radiological Emergency Planning and Preparedness has increased. In 1981, there were just 12 professionals in the central office. Today, there are 21 professionals and 2 clerical staff. There has also been an increase in the regional staff from approximately 44 persons per month participating in the exercises to 50. In addition, Congress has approved 30 additional staff, and we are in the process of hiring or have hired many of them.

The Office of Emergency Operations, which Mr. Jones represents, has seven persons at headquarters and an estimate of five persons per month in the regions. We hope that these personnel resources will be sufficient for the mammoth task ahead. The coordination of the Federal Radiological Emergency Planning Assistance for State and local governments is carried out primarily in regulation 351. This assigns duties to the other Federal agencies that are involved in Federal Radiological Planning.

This includes the Nuclear Regulatory Commission, the Environmental Protection Agency, the Department of Transportation, the Department of Energy, the Department of Agriculture, the Department of Health and Human Services, and the Department of Defense.

The responsibilities assigned to these agencies by FEMA are both common to all of the agencies as well as specific. There is located in Washington a Federal Radiological Preparedness Coordinating Support Committee which meets on a quarterly basis and discusses various problems and ways to address the issues of emergency planning.

All of the agencies which I mentioned do participate in this committee and do attend the meetings. We have a professor evaluating off-site emergency preparedness, and this is primarily a rule called 350, the 350 process. Currently, we published a proposed rule on August 19, 1982, and we hope to publish the rule in final form this summer.

Let me just get through the 350 process very briefly. The regional office of FEMA obtains site-specific plans from the Governor requesting a formal 350 approval. These plans are usually for all the local jurisdictions within the area of a commercial nuclear powerplant, both in a 10-mile emergency planning zone and a 50-mile ingestion zone.

Then, there are public meetings held which FEMA organizes to get the opinion of the public on the plans.

The next step is that there is a regional review. The Regional Assistance Committee, which is composed of the 80 other Federal agencies, reviews the plans, makes any recommendations, and then FEMA contacts the State to correct any deficiencies in the plan and to provide schedules corrective actions.

The next step is that the State and local governments participate with the utility in the full scale exercise. The FEMA regional rep. views the exercise.

The FEMA regional director, with the regional systems committee's help, submits the evaluation of the plan and exercises to FEMA headquarters in Washington.

The plan is again reviewed in Washington, not only just by FEMA, but by all the agencies involved in the Federal Radiological Preparedness and Coordinating Committee.

If the plan is satisfactory and approved, we so advise the Nuclear Regulatory Commission and the Governor. However, this approval does not stop. We continue to review the plan through adequate annual exercises.

Now, the basis for the FEMA evaluation is really a joint Nuclear Regulatory Commission-FEMA guidance document entitled, "The Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Plants."

This is often referred to as NUREG 0654. FEMA also supports the Nuclear Regulatory Commission in the licensing process. There is a 350 process, which I mentioned before, but very often, because a Governor has not requested a 350 review, we do provide interim findings on the status of offsite preparedness to the Nuclear Regulatory Commission.

These interim findings may be based on draft plans not formally submitted to FEMA on exercises.

Let me talk a little bit about the job that has to be done and what FEMA has done.

First of all, there are a total of 87 plants in the United States which require offsite preparedness. Fifty-three of those plants are operating; 30 are under construction, and 4 are planned.

Senator SIMPSON. Mr. Krimm, I think those figures, we could find in the record. I think it would be best if you could give me the 10 minutes, and if you could summarize quickly, and then we can go into questions, because we can obtain those statistics easily.

Thank you.

Mr. KRIMM. All right. In summary, I would like to say that FEMA has progressed substantially since the last time we appeared before you. We have progressed substantially in working with State and local governments, and I want, at this point, to commend the efforts of most State and local governments in their efforts on offsite preparedness; it is quite a burden for them.

But we feel that it is going to be another 2 or 3 years before offsite preparedness will be completely satisfactory for protecting the public safety and health of people living around a nuclear facility.

Thank you.

Senator SIMPSON. Thank you, very much, Mr. Krimm.

Congress, in the 1980 NRC authorization, and again in the 1982 and 1983 authorization, authorized the NRC to approve a utility prepared emergency plan if the NRC found that such a plan provided reasonable assurance that the public health and safety would be protected, only by admission.

According to the NRC now, if they were to receive such a plan, they intend to send it to FEMA for review. Yet you inform us that FEMA will only review a plan submitted by a Governor.

Congress, I think only intended that a utility have the opportunity to have a plan reviewed. But I wonder if the FEMA response to such a plan, which, I gather, apparently would be to return it to the NRC without reviewing it, is really at all responsive to this twice expressed congressional intent that a utility plan can serve as one of the options in the emergency planning issue.

Mr. **Krimm**. Let me state that there are two types of utility plans that could be submitted: First of all, there is a utility plan that can be submitted with the support of the State and local governments. In many cases, the utilities do draft a plan which is subsequently adopted by the State and local government.

The other type of utility plan that would be submitted and, I think, is maybe the one you are more interested in, is that one which is not submitted with the support of the State and local government.

In theory, a plan from any source might meet the FEMA criteria.

However, given the nature of criteria requirements which ordinarily include a requirement of enormous resources commitment, an implied use of local law enforcement authority in support of the general public is evidenced by the enforcement of local public leadership.

I would not consider it likely in the most conceivable circumstances that a plan from other than appropriate local, State, and Government sources could meet FEMA's criteria.

One hundred sixty-nine out of the 212 planning standards which we use relate to local and State governments. But if such a plan was submitted, in other words, a utility plan without the enforcement of State, and local government, FEMA would review it on a prima facie basis and would return it to the NRC.

We would have to advise the Nuclear Regulatory Commission that because the State and local governments did not endorse this plan or were not participating, that we could not guarantee the adequacy of offsite preparedness or the safety of the public around a nuclear facility.

Senator **Simpson**. But you would review it?

Mr. **Krimm**. On a prime facie basis.

Senator **Simpson**. What is that?

Mr. **Krimm**. We would look at the plan——

Senator **Simpson**. Kind of shovel it on, throw it down?

Mr. **Krimm** [continuing]. And transfer it, yes.

Senator **Simpson**. Would you go into it in the same manner as if it come from the county?

Mr. **Krimm**. Not really. We would certainly look at the plan and see if there were problems for future reference, but the major thing I would like to get across is that without the State and local government, the plan could not be enforced. That is the key issue.

Senator **Simpson**. I am aware of that. I am aware of what you are saying, but I am talking about, how can you make a decision without appropriate review?

You are just going to do that?

Mr. **Krimm**. The decision would have to be made on the fact that the plan was not endorsed by a State or a local government.

Senator SIMPSON. I am aware of that. I know, but, there are other things in there that do not have to do with whether traffic cops are furnished by the municipality and what other things are done.

I am just curious.

Mr. KRIMM. Also, I——

Senator SIMPSON. Just a second. Let me finish.

Mr. KRIMM. Sure.

Senator SIMPSON. What is it that you would be looking for? Would you just give it a cursory, "No, because" and I can hear what you are saying—"because the county and the State are not going to participate, and, therefore, you wouldn't meet the test of the public health and safety," and I understand that.

But are you going to be looking for anything in there worthwhile to build onto, then, say to the county, "In your role as negotiator, you are going to be in there with various roles," whatever the statute says, and say, "The utility, I think, has made an effort here," and, "Are you really here in trying to have an emergency plan, or are you involved in just trying to get rid of the facility."

Somewhere along the line, even though you don't read that in the statute books, you will come to that as you dabble with your activities.

I am saying, do you just reject that summarily, or do you say that here, based on the fact that they put $150,000 into this engineering study; they put $200,000 into this as to emergency routes; they spent $50,000 to check the roadways into this area, and we are not just going to chuckle it off.

Mr. KRIMM. We can certainly look at the plan and we can comment to the NRC on it, but I have got to stress what the final conclusion is: We can—and that is that it would not be adequate for offsite preparedness.

Our standards, as Gary was pointing out to me, really require commitment by the State and locals, and we evaluate those standards based on the State and local governnent.

Senator SIMPSON. Then we see that your standards apply on the face of the statute which is the option that the utility plan be reviewed. That is what Congress had in mind.

Mr. KRIMM. I am sorry.

Senator SIMPSON. Did you hear that?

Mr. KRIMM. No, I didn't.

Senator SIMPSON. Congress had in mind that the utility plan was something that would be reviewed. That was an option. Your standards, obviously, prevent that, period.

So we need to do something about that.

Mr. KRIMM. The standards which, of course, was a joint criteria with the Nuclear Regulatory Commission and the Federal Emergency Management Agency, the standards depend on the involvement of State and local governments, and——

Senator SIMPSON. Yes, but one of the things——

Mr. KRIMM. Excuse me—and without that involvement and without that commitment, there is no way that we can find a plan adequate.

The utility could draw up the most beautiful plan in the world, and we could certainly review it, but without that involvement of State and local commitment, there is nothing we can do.

Senator **Simpson**. I understand that. Therefore, those standards strike at the heart of one of the options under the law, right?

Mr. **Krimm**. That is correct.

Senator **Simpson**. OK.

According to some recent NRC licensing board decisions, there has been some reference to FEMA witnesses who testify in those NRC proceedings in defense of the FEMA offsite findings, and I gather that those decisions indicate that there is something to be desired in that.

I am not personally aware of this feeling, but I am advised of it, that the quality of the testimony is not always felt to be appropriate, in depth or what is required.

How much time and funds do you estimate is expended by FEMA for the purpose of defending your findings in the NRC proceedings, and would you be able to use those resources if they were available to expend more time on actually reviewing and approving an emergency plan?

Mr. **Krimm**. I am going to ask Spence Perry from our General Counsel's Office to answer that question, because he is the one who does most of the work and represents FEMA at the Atomic Safety and Licensing Board hearing.

Senator **Simpson**. Please?

Mr. **Perry**. Mr. Chairman, I think that perhaps we have been involved in evoluationary process that has seen a considerable track of improvement over the last couple of years.

The first case that we tried with the NRC before NSLB was TMI. That was 2 years ago.

At that time, no one really knew what an offsite preparedness case ought to look like. The issues were new before the boards; they frequently had difficulty grasping them; counsel for the other parties frequently had trouble grasping them.

We were in the midst of evolving our own process for evaluating offsite safety. The issues were new; the players were new, and I think there were some difficulties.

But I think, as time has passed, the performance of FEMA witnesses has really been quite good. They are very dedicated people. They are regional people who are close to the plants and to the problems who have a working familiarity not only with the geographic situation and the plant's location but with political realities with which FEMA is having to deal in terms of bringing preparedness up to snuff. I think performance today is really, by and large, quite good.

I would say, too, that frequently it is a case of hard cases making bad law, in a sense. Some of the cases that have brought criticism on our witnesses have been cases that have been equally difficult for our far more experienced colleagues at the NRC. So I don't think that is really fair to characterize the performance as shoddy or lacking in capability.

There are some built-in problems, too, that relate to the way we approach offsite preparedness and the way the NRC tries a licensing cast. Very frequently, the NRC licensing process is not necessarily in tandom with planned development. We have to work with the States in bringing along planned development on a schedule which meets their local resources, and it may very well be that the NRC is ready to go in a licensing proceeding, but not the State and local governments, perhaps being not quite so far along in the development of their offsite safety plans, which, in turn, makes for a weaker offsite safety case. We find frequently in situations like that that if we can work out a mutually agreeable delay to the point where the plan has been approved and exercised, we have a lot more to say, and we have a lot more definitive case to bring before the board. So I think today, FEMA's performance in this the hearing rooms have been quite effective. I think our colleagues in the NRC recognize this. It is a source of pride to get our people to the stand and testify. It has been a totally new experience for them.

Senator SIMPSON. Thank you, Mr. Perry.

It is not I who used the phrase that their work was shoddy or lacking in ability. Let's get that clear.

Mr. PERRY. I am aware of the general plume that has followed us.

Senator SIMPSON. I said it left something to be desired, which did not have all those other connotations.

Now, the question that has not been answered. How much time is expended in that process?

Mr. PERRY. Sir, I have the equivalent of approximately 2, perhaps as much as 2½ lawyer years devoted to this. I would hesitate to comment on how much witness time is devoted. I see witnesses in terms of witness preparation when we are actually getting down to preparing testimony for them, preparing for cross and others, but I know a great deal of time has been devoted to that for witnesses of the defuse sort. Because the witnesses going before the board have spent a lot of time in reviewing plans and evaluating plans.

I would like to defer to Mr. Krimm's activity.

Mr. KRIMM. Senator, we are going to try to get you as precise an amount of hours that are spent as possible. We are currently contacting a regional office, and we will submit it for the record.

I also just wanted to mention one other thing in answer to your question: That we have had expert witness seminars where we have trained our—been training our regional staff to the expert witnesses. I believe that there has been quite an improvement since we have had those training courses.

Senator SIMPSON. I see. I think that would be an excellent step. I am just wondering, validly, how much is expended there and whether those resources might be more appropriately expended on the review and actual approval of emergency plans. That is my inquiry.

Mr. KRIMM. Right.

We do spend a lot of time on it, and I will furnish that information for the record.

Senator SIMPSON. OK. Thank you very much.

There is just another question: There has been a significant amount of discussion concerning the feasibility of preparing and implementing these emergency plans for plants located in high population areas. It is my understanding that the emergency plan for the Zion plant near Chicago has now been exercised on a number of separate occasions and that these exercises have been observed and evaluated by FEMA, and I think, by the NRC, also.

That is of two plants with the largest population density in the country. Could you share with us the results of your most recent review of the emergency plan exercise at Zion.

Mr. **Krimm**. Yes, Senator. There was an exercise around the Zion Nuclear Power Plant on January 18, 1983. The final exercise report indicates the exercise demonstrated an adequate level of radiological emergency preparedness offsite to insure the health and the safety of the public living in the areas around Zion.

The States of Illinois and Wisconsin exercised on a small-scale capacity. While Kenosha and Lake counties both exercised in full scale capacity during the most recent exercise, there were no significant deficiencies.

Senator **Simpson**. Let me submit the rest of those questions in writing. Do you feel that you have a rapport and a coordination with the NRC on individual levels?

Mr. **Krimm**. Yes; if I can speak for everybody, we do. We work very closely with them. There is what is known as the NRC–FEMA steering committee and we meet quite regularly.

We are in constant telephone communication with the Nuclear Regulatory Commission in many areas. We work at the regional level very closely with the NRC. During the past year, we have appeared before the Commissioners on numerous occasions to discuss offsite preparedness.

I believe that we have a very good working relationship and coordinate quite well and work quite well together.

I believe that Mr. Perry has an extremely good relationship with the General Counsel's Office.

Mr. **Perry**. If I may add to that, I think our working relationship with the NRC lawyers has been one of the most pleasant in my professional career. They are very helpful people. They help us every step along the way. There is no basis for us to have any criticism or complaint at all about helpfulness, the very helpful things they have done for us.

Senator **Simpson**. So you really believe in the language of the memorandum of understanding.

Mr. **Krimm**. We are always continually working with it. Presently, we are making some revisions to that memorandum of understanding and working with the NRC on its provisions.

Senator **Simpson**. Thank you. I think the public's perception of the NRC, which is a regional body reviewing things that have to do with public health and safety, and your participation as far as emergency planning, that it is good to know that good things are happening, as you suggest. The perception meets the reality. That is what we try to do with oversight, is to be sure that that does occur.

Thank you.

Mr. **Krimm**. Thank you very much.

Senator **Simpson**. The next panel: Murry Edelman, chairman of the Committee on Reactor Licensing and Safety, Atomic Industrial Forum, accompanied by Dr. Fred Buckman, chairman of the Subcommittee on Emergency Preparedness and Siting of the Atomic Industrial Forum; George Gleason, executive vice president of the American Nuclear Energy Council, and Steven Sholly from the Union of Concerned Scientists accompanied by Michael Faden, Legislative Council.

STATEMENT OF MURRAY R. EDELMAN, CHAIRMAN, COMMITTEE ON REACTOR LICENSING AND SAFETY, ATOMIC INDUSTRIAL FORUM

Mr. **Edelman**. Good morning, Mr. Chairman.

I am Murray Edelman, vice president of the Nuclear Group of the Cleveland Electric Illuminating Company of Ohio.

I am also chairman of the Atomic Industrial Forum's Committee on Reactor Licensing and Safety.

It is in that capacity that I am here today. The chairman has already introduced the other two members of the panel, Mr. Gleason and Dr. Buckman.

On behalf of the panel, I wish to express our appreciation to this subcommittee for the opportunity to present our views and the written statement that we have prepared.

Rather than reviewing in any detail our written statement, I would just like to summarize some of our comments and observations for the oral presentation.

First, in our opinion, the NRC and FEMA are attempting to do indirectly what they cannot do directly. That is, to compel the States and localities, through the utilities, to adopt their requirements.

This places the utilities in an untenable position without any recourse.

Next, the emergency planning offsite review process is very complex. It has already been described this morning by the FEMA representatives.

This process introduces additional uncertainty, and complexity into the whole regulatory process for the licensing of our powerplants and adds questionable benefit to the safety and health of the public.

It has already been pointed out by the chairman and people here that local governments and State governments have exercised their authorities in emergencies around the country and have demonstrated that when real emergencies do exist they can perform and do perform their designated responsibilities.

In addition, the overall question of emergency planning must not be evaluated in a vacuum. By this, I mean that we must consider the specific site, the designs that are incorporated into the plant and the preparedness of the utilities themselves.

In conclusion, taking some of these observations, we would recommend as a minimum that Congress should again extend the provisions of section 5 of the 1983-84 authorization bill and make clear, and I would like to emphasize those words, NRC's responsibility to evaluate a plan submitted by a utility in lieu of a plan submitted by the State or local agency to FEMA.

In addition, the whole concept of financing emergency planning around commercial nuclear facilities should be addressed by Congress to bring under control the uncertain financial requirements that the utilities presently face.

There is no question that we are willing to support the local communities in financing efforts that are needed for our plants. But there are numerous examples as provided in the statement that requirements that have been imposed on this industry go far beyond that level of financial support required.

In addition, Congress should reexamine the basic institutional framework currently in place with the intent of providing the actions necessary to support a more workable process, as the chairman tried to allude through the witnesses before us, to achieve what is required for insuring the safety of the public.

With that, that concludes my overall summary, Mr. Chairman.

Senator **Simpson**. Thank you, very much.

Mr. George Gleason, please?

STATEMENT OF GEORGE L. GLEASON, EXECUTIVE VICE PRESIDENT AND GENERAL COUNSEL, AMERICAN NUCLEAR ENERGY COUNCIL

Mr. **Gleason**. Thank you, Mr. Chairman.

I submit my prepared statement for the record.

Mr. Chairman, I intended to take a few minutes to explain the problem to you, but, as the problem was stated very well here this morning, I clearly don't have to explain the problem.

I believe the chairman does see the problem that has to be corrected.

Let me suggest that there is, indeed, a solution to this problem, and it is the solution which Congress originally had in mind in enacting section 109 and in reiterating it in section 5.

Responsibility and authority must go hand in hand here. The utility has the responsibility to its ratepayers, and to its stockholders. Once a plant is built, you get an operating license for that plant. It does not have, under the existing system, the authority with respect to the emergency plan which is needed.

We have to reconstruct that system so that the utility has both the authority and the responsibility.

If you go back to the legislative history of section 109, you, Mr. Chairman, and Senator Hart were on the right track in the beginning with your original amendment in the Senate.

Your amendment said the utility should submit the plan to NRC. And, then, of course, NRC would draw on the expertise of FEMA for their advice and guidance. But the whole process has got to be brought back into the context of the NRC license proceeding.

You intended to give the utilities and the NRC a forum for resolution of those disputes. Under the current system, that forum can be avoided. We have seen that in New York where Suffolk County says, "We just won't participate."

You have got to bring them into the licensing process, into the forum that was established for resolution of that, and put the responsibility on them for defending their decision not to participate.

That is the first thing that has to be done.

The second thing that has to be done is that the current system, when you get a chance to review our testimony, you will see the enormous open-ended costs associated with this process; far beyond what NRC and FEMA originally anticipated. You need to address that issue. There needs to be, first of all, some recognition in the fact that there is, indeed, an additional burden placed on the States and localities which the utilities should pay for.

In proportion to that burden, there has got to be some parameters on the system. Right now there are none, and, in fact, the process is being used as an open-ended process, not only to pay the cost of the police process, but also to pay for many things beyond that in terms of bridges and firehouses and police equipment and things like that which are not needed exclusively for purposes of the emergency planning.

The central issue which has got to be addressed was touched on here this morning; it is: you must establish criteria which distinguish between the planning process and the implementation process.

Clearly, a utility without the help of the States and localities, can submit a plan. NRC ought to evaluate that plan and the FEMA ought to evaluate that plan on the basis of whether or not if implemented, it would adequately protect the public health and safety.

The problem with the present system is that there is some confusion between the "if implemented" and "whether it will be implemented" situation.

Under the current system, I think that as Commissioner Gilinsky recognized, the States and localities do, indeed, have a veto. You have got to revise that system so that NRC looks at whether the plan, if implemented, would protect the public health and safety. They should not look at the issue of whether or not that plan would, indeed, be implemented. It ought to be implemented on the basis of States' and counties' plans. Indeed, in the time of emergency, as Rockland County has indicated, even though they don't have an approved plan, they will act to protect the public health and safety.

NRC should not be required to run around the country reading the results of every State and local election to see whether or not they have a plan which can be implemented. If there is a plan that is implementable, as the chairman suggested, it should be reviewd by FEMA, much more than they do now. Whether that plan or some other plan is ultimately going to be implemented should not be the situation.

We have determined there is an adequate way to protect the public health and safety. That is what is important.

If the county chooses in the future to implement a different plan, there is nothing currently in the law that requires them to implement the approved plan, and, indeed, there is no way you could force them to do that.

I think those are really the major elements of the solution. This is what the Congress intended. The Simpson-Hart amendment was pointed in the right direction. I think you ought to dust off the legislative history here and go back to the similar, straightforward, effective regulatory procedure which you spelled out there.

Senator SIMPSON. Thank you.

Mr. Sholly, please?

STATEMENT OF STEVEN C. SHOLLY, TECHNICAL RESEARCH ASSOCIATE, UNION OF CONCERNED SCIENTISTS, ACCOMPANIED BY MICHAEL E. FADEN, LEGISLATIVE COUNSEL

Mr. SHOLLY. Good morning, Mr. Chairman, I will try to be brief.

I would agree with FEMA to the extent that we have radiological preparedness and response plans around all the operating plans that are much more comprehensive and much more extensive than what we had 4 years ago before the TMI accident.

We do believe there are some problems with the plan review process.

The first, which I gather Mr. Krimm perhaps alluded to, is that FEMA is somewhat understaffed and underfunded for the task.

Granted, FEMA has a lot of responsibilities, but if they are going to be in this business of reviewing offsite plans, and providing witnesses at NRC hearings, they have to have enough manpower and funds to do that and do it efficiently.

The second problem is that the FEMA-NRC review process goes on largely behind closed doors. We think that the process needs to be opened up to the public; in fact, the earlier that occurs in the plan review and the plan development process, probably the better the process will run.

Finally, we believe that since FEMA has no final rule on emergency planning, the review process is somewhat tailored to specific situation and is not entirely predictable.

I was pleased to hear Mr. Krimm advise the Senator that the final rule will come out this year, and we will all be looking forward to that.

I think the central issue here this morning is whether a utility plan can substitute for the offsite plans of the State and the local governments.

I think we would agree with the general sentiment of the NRC commissioners, that while theoretically it is possible that that could be the case, in practice, it is very difficult to see how it could be.

If you think for a moment what is involved, the utility would have to take over the functions of government. It would have to declare the emergency; it would have to have the authority to make emergency broadcasts; direct transportation resources; control traffic flow; take over the entire range of functions in that emergency situation.

As utilities are presently organized, and as the issue is presently addressed, it is just not terribly conceivable that that would be done.

There are two other issues that are brought up quite frequently, and I would like to take a minute and try and address those if I could.

The first is the source term issue. I think much is being made, particularly by the industry, and I think also by the NRC, of impending reductions in the source term, and how this might affect emergency planning.

We think this is an open issue right now, and it is premature to make judgments in terms of what ought to be done in regards to emergency planning vis-a-vis the source term issue.

Just to put it in perspective, however, if an overall reduction is made in the source term, and a factor of 10 should ultimately be justified, the emergency planning needs wouldn't really change by that much.

Even a factor of 100 wouldn't eliminate it. So we would still need some offsite planning. Of course, the area might be reduced, but the problems that were addressed here this morning will not disappear.

Finally, I think it is useful to look back at how the emergency planning rules came about and the requirements for the emergency planning zones that we are now working with. Fundamentally, they are closely linked with the reactor safety study. Since that time, since 1975, we have results for a number of plants, some 17 in total. If you look at these in the aggregate, they certainly don't provide any basis for complacency.

Indeed, the average or typical likelihood of a core melt accident or a severe release as a result such an accident looks to be somewhat higher than the reactor safety study results indicated. So I think that factor alone should push us to see that these plans are adequate at the earliest possible date.

I think Mr. Faden has some comments, as well.

Senator SIMPSON. Go ahead.

Mr. FADEN. Thank you very much. Let me just make a couple of points, and the first one will respond to a comment of George Gleason's.

He asserted, as I understand it, that the standard ought to be not whether a plan will be implemented but whether a plan, if implemented, would work.

We think, as Commissioner Ahearne told you earlier, that that turns the Atomic Energy Act on its head. The standard under the act is the adequate protection of the public health and safety, and unless the Commission can find not just that the plan exists on paper but that it will or at least is reasonably likely to be implemented, then I do not think anyone can say that the public health and safety will receive adequate protection.

In 1979, as Mr. Gleason stated, the original Hart-Simpson provision coming out of this subcommittee, we also feel that that provision may have been the best cut at this problem yet. As you will recall, it required that plants be shut down if no adequate emergency preparedness plan was developed and approved. The Senate, as you know, then, rejected an amendment to let the NRC write its own plans, and you and Senator Hart both very eloquently argued for rejection of that amendment. That was the Johnston-McClure amendment. We have reprinted some of your statements on pages 9 and 10 of our testimony.

Essentially, what has been proposed under at least one interpretation of section 5 is the same thing: the NRC would write its own plan. The plan would come in under the letterhead of the utility, but it is the NRC adopting the plan, rather than the State and local governments who have ultimate responsibility and, as Mr. Sholly said, that seems to me to be an impossible proposition.

Let me just mention one other point for a moment. It concerns the two plants whose ghosts really loom over this issue, and that is Indian Point and Shoreham. They have not been mentioned all that much, but we all know that those are the cases uppermost in everyone's mind, Shoreham in particular. Mr. Edelman's lengthy appendix has a great amount of factual information on that case.

We hope you will direct your staff to seek to balance the record and get an equivalent picture or a responsive picture, if you will, from the other parties in that proceeding; namely, the intervenors and especially the county. We think that if that is done, the record will show that the county has, in this case, taken every effort to develop an emergency plan. They have spent over $600,000, as I understand it; hired the best experts around the country; spent almost a year in this process and then concluded that such a plan was not developable and that the plan could not be implemented.

One additional point about Shoreham. The original intervenors, back in the early 1970's, argued in the construction permit hearing that there would be severe emergency preparedness problems at this site. When the construction permit was granted in 1973, the licensing board told the intervenors that this issue was not ripe at the time; it would be ripe when the operating license was heard.

We are now in that situation. It is very difficult to then tell the intervenors, meaning the public, that because the plant is built, we have to make grave compromises on emergency planning.

Thank you very much.

Senator **SIMPSON**. Thank you very much. I appreciate your views, all of you.

We will come back to Shoreham. I think that it is important to address that.

Let me ask Mr. Edelman: because of the method the existing emergency planning process operates under, with the utilities working closely with the State and local governments to prepare and implement these emergency plans, neither the NRC nor FEMA, I understand, have any record of the requests that are made by the State and local governments to utilities in connection with emergency planning.

I gather that often, much of the financing of these plans comes from the utilities and is arranged for informally between the utility and the State or local governments. As a result, we here do not have a full public record of the requests that are made by the State and local governments.

Having served as a member of the Platte County Planning and Zoning Commission, I knew we were always looking for somebody to pay for the studies we requested of those we were doing a number on.

So as a result, we do not have that information. How pervasive is that problem? Are you finding that the utilities are being asked to make decisions and take actions that may not be directly related, if related at all, to the primary responsibility of the State and local governments for emergency planning?

Mr. **EDELMAN**. The direct answer to your question is yes, and I will try to elaborate on that. As you can tell, I guess, from your past experience on the park board, these things are not documented. They are at local meetings between local officials, State officials, and the utilities. We have attempted in the testimony, but not specifically listing the sites of the utilities involved, to indicate the amount of dollars that utilities have contributed to the development of a plan at both the State and local levels, as well as the equipment that the local officials deem that they need to implement the plans.

The dollar expenditures are far in excess of that which has been predicted in the past by FEMA and the NRC. Part of that increase in dollars is that the equipment goes far beyond that which is needed to strictly implement the nuclear portion of a State or a local county's emergency planning activities. Such examples as additional communications equipment which are used for their normal day to day emergency communications throughout the county which are not needed or really required as part of the overall nuclear preparedness plan.

Those are the facts of life of what is going on out in the communities. The utilities are not against assisting the local as well as the State people in those activities that are truly needed for them to develop their plans and provide that equipment which is truly needed to implement that portion of their emergency plan where we add that additional burden to the local community.

But we have no recourse to stop it at any place. We have no recourse, as has been mentioned before. If the local election changes administrational and the next administration wants something in addition, they are not bound by prior agreements.

So we have been or are continually dealing with the local officials to get a workable plan including providing the finances to support it and then providing equipment to the local communities to implement their plan.

Senator **Simpson**. Let me ask you: we will touch on Shoreham a little bit. At Shoreham, Suffolk County made a number of demands upon the utility during the course of negotiations over the county's role in the emergency plan.

Those included such things as construction of a simulator; agreement to place a representative of the county on the utility's nuclear review board; a third party independent inspection of the key safety systems of the plant.

Given the current statutory process of the county, I think, under those circumstances, with the amount of dollars in the investment at this time, some $2 or $3 million, does not the county, then, really have extraordinary ability and have the utility over a barrel in every way? And then the utilities really have little other choice but to agree with those demands, as Long Island Lighting did, apparently, even though they appear, at least to some reasonable people, to be totally unrelated to emergency planning? If so, how do we go about correcting those problems with the present system? What kind of legislation would one require to correct that situation, if it, indeed, should be corrected?

Mr. **Edelman**. First, I am not familiar with the details of Shoreham. Some other members of our panel may elaborate on that, but I will answer the general or generic question that leads to it, not the specific question.

In truth, we are held at bay, or as people have used the word, others have third party veto power of what we can do without recourse. One of the recommendations we made in the prepared statement, and I will elaborate briefly here, was to have the NRC have the responsibility for this. We feel that the NRC's licensing process should be the process to evaluate the emergency plans. That is, if the local or the State governments wish or wish not to participate, the forum in which the process should take place is in the Atomic Safety and Licensing Board hearings.

But I think it goes back to Mr. Gleason's statement, which is that we can provide an adequate, onsite, as well as offsite plan which, if implemented, meets the intent to protect the public health and safety.

The question of implementation of the plan rests with the county officials, and we certainly, as everyone said, need to deal in the spirit of cooperation. But to get a license, if such a plan existed and it was chosen to be implemented by the local and State officials. And would protect the public, then they would fulfill their responsibilities as well as the NRC fulfilling their responsibility to assure that such a plan was available to the State and local officials.

Mr. Gleason may want to elaborate a little bit on the Shoreham situation or my comments.

Mr. GLEASON. I think the Chairman accurately stated the situation in the case of Shoreham.

I have here sitting on the desk the emergency plan which was prepared for Shoreham. Presumably, it might be the plan that they would submit as the utility plan. Mr. Chairman, I do not want to clutter up the record of the proceeding here, but I would be very happy to submit that for the record. But you can see that you have a two volume and several hundred page plan here which was developed over a period of time with the input and cooperation of the county. This is the plan that FEMA told you they are not going to review—all this good stuff that we paid good money for—and FEMA says, "All right, we have a regulation that prevents us from doing that," and it frustrates the congressional intentions.

You cannot let them get away with that. You have to change the law. You have to eliminate the leverage which the current system provides to the utility, and you have to eliminate this "after you, Gaston," approach to legislation.

The NRC was perfectly aware when they were up here this morning of what FEMA subsequently told you, but they would not admit it. They would not admit when they were here that, indeed, FEMA will not review that plan. They said they would look at it. They will not. They are frustrating it properly. What you have to do is change the law and bring all of that into the context of the NRC's regulatory proceeding where there is a forum for resolving these unreasonable demands, or the demands, whether they be unreasonable or reasonable. Bring it all in there, bring all the parties in, and if the county does not agree with the plan, if it wants more money on resources, you have a forum to resolve it.

That is the solution.

Senator SIMPSON. Fine. Let me assure you that the record is open in this subcommittee for entry of any documentation you wish. It was that way when Gary Hart was chairman, and it has been that way since I have been chairman. So if you feel that you are light on your record, why, load it up. But do not leave the committee saying Congress has stuck you in any way.

Mr. FADEN. I do not believe they have. Let me set the record straight. I do not want to add pages, but I think Mr. Gleason has put down that several hundred page document in front of you. Just so you understand, that is an incomplete plan that the county decided itself is not adequate.

Senator SIMPSON. That is fine.

I am not aware of what that is or what Suffolk County did. I have seen some correspondence between county legislators for Suffolk County, which makes me believe that whatever they loaded it up with may have difficulty. It seems they were using it for preparation for litigation rather than finding out whether they needed an emergency plan. But I think that is an interesting thing.

Mr. FADEN. I think there are at least two views on that, Mr. Chairman.

Senator SIMPSON. I am sure there are, and I have found that in this place.

Mr. FADEN. If there are only two, I think you are in good shape. I think that almost calls for—I think we are getting to the point where Shoreham is the test case on which section 5 depends. As has been said before, hard cases often make bad law. I think if you are to base any legislative action on that particular case, I would urge you to open the record in a more active sense, to extend this hearing and bring down, without trying to relitigate Shoreham, without trying to step in where the ASLB is now, but to open it up without hearing the case. Because Mr. Gleason's pleas for section 5 depend on that case, I can assure you you will have very strong countervailing arguments.

Senator SIMPSON. I did not hear that this morning. That is not what the NRC was saying as I asked about the extents of section 5. I think all five commissioners were indictitive of the forum, at least, indicitive of extending section 5. If I get to play judge, I hereby overrule that.

Back to Mr. Sholly.

I gather from your testimony that you would essentially leave to the States the decision of whether an adequate emergency plan has been prepared; if not, whether you would require a nuclear plant to go to shutdown. Does this mean that a State could decide to shutdown a plant even though an emergency plan has been prepared that meets the NRC's requirements? Would you respond?

Mr. SHOLLY. Well, it isn't to shut the plant down unless undertaken voluntarily. Of course, that is up to the NRC—and if you go to their emergency planning regulations, there is a very definite process set out for considering the proposition that you have put forward.

That appears in 10 CFR 50.47 (c); that at any point, either before the plant is licensed or once the plant is licensed, if there arises a question about whether the health and safety is adequately protected, the NRC can issue a show cause order where it feels it has an adequate case.

It can make that show cause order effective immediately and shut the plant down pending litigation. But the utility, under that provision, is required to show that the deficiencies in the plan either aren't significant for this particular plant; that adequate compensating measures can be taken, or that there is some other compelling reason for letting the plant stay in operation.

I think that very well covers the intent of section 5.

Senator SIMPSON. In your testimony you say that responding to emergencies is fundamentally a State responsibility.

OK.

If that is the case, does that mean, then, if you follow that, that if a State chose not to prepare and implement an emergency plan simply because maybe that State felt that the risks of nuclear power are great enough to justify the expense of an emergency plan that you would then be prepared to defer that State's decision, as well?

Mr. SHOLLY. I think that what we have been told so many times, is that a decision is made at the congressional level of whether or not we are going to have nuclear power at all. We are all forced to defer to that decision, but I think as a practical matter, there are two permutations.

There is one where the State or locality just said, "We ain't gonna do it, and to heck with you. Do what you have to do."

In that case, I think the utility has a recourse, and that is the courts, slow though they might be.

There is also the permutation where the State, through a reasonable process and through an examination of the situation, comes to the conclusion that an adequate emergency plan cannot be implemented for a particular site.

In that case, I think the NRC would be forced to very strongly look at the State's position and look at the underpinnings for it.

I think as the Commissioners themselves indicated, if faced with that position, they would almost have to shut the plant down.

Senator SIMPSON. No. What I was really indicating was what if a State said, "No, we don't care to do a plan, but we had the operating license, and we are going to go ahead, and we are a State," how would you respond to that?

You are leaving it to the State's responsibility. Responding to emergencies is essentially a State's responsibility, and let's say a State said, "We want an operating plant, and we are willing to take that. And we don't care what the risks are. We are going to go ahead."

How would you respond to that in regard to permutation?

Mr. FADEN. In 1980, you laid down through the Authorization Act the principle that there ought to be at least minimum Federal standards. I think what has been happening since, as so often does, is that those minimums may be converted into maximums. That is, a State which wants to conceivably go further because it feels its residents' safety and health can only be protected that way, is precluded from doing so.

I think this is a State decision, as Mr. Sholly said and as his testimony reflects, because, Commissioner Gilinsky highlighted this point best; it will eventually be the State and its people who will have to pay for this.

They have a mechanism through the State utility commissions of allocating the cost for shutdown. There is a healthy debate on Long Island on whether or not it would be cheaper, as well as safer, not to start Shoreham. But those allocations are not fundamentally Federal issues; they are State issues.

Senator SIMPSON. I am fascinated with that argument, because I see so many things in my capacity here as a Federal legislator, where almost everything that is dealt with in emergency planning is on the Federal level. We have emergency flood relief; we have emergency disaster relief; we have emergency this; emergency that, all of that under the auspices of the Federal Government; emergency drought relief and so on and so on, and then suddenly, here, "This area is a State responsibility", doesn't ring.

Mr. **Faden**. Mr. Chairman, if I could respond, I was never on a local planning board, but I was in a State capitol during the worst blizzard in 50 years. Although I can assure you that the Federal Government came through in terms of personnel, expertise and money, it was the State and its police and the local police who really bore the brunt of that effort.

I think that is still true. What you are talking about are infusions of cash and filling in gaps.

But it is still the local personnel, the local coordination that——

Senator **Simpson**. Let me ask you just a couple more questions, if I could.

If, for instance, a nuclear powerplant has this 10 mile emergency planning zone that covers, say, 21 townships, each of which must agree to implement an emergency plan for it to be effective, would you support the suspension of the operating license for that facility if only one of those 21 townships determined not to implement an emergency plan and the State refused to undertake the town's responsibilities?

Where are you with that scenario?

Mr. **Sholly**. You have to look at it on its merits. I find it very difficult to believe that some compensating action could not be taken for an entity on the level of a township unless it is the biggest township I have ever heard of.

I think where the real problem is, is at the county level, particularly the host county for the plant, and that is where the issues are generally being brought to the forefront.

Senator **Simpson**. That, I think, is not a question I am prepared to play wizard at. That is real. I think we ought to realize that is real and where are we as we deal with that.

That is what I am trying to get at. I seem to hear all the issues around here that have to do with emotionalism whether its in the Veterans Committee, the Immigration Subcommittee or the Nuclear Subcommittee.

I have learned one thing: Always take guilt, fear, and racism, and emotionalism, and put them out first and then get to dealing with the issues. It works better that way.

That is the tough thing, and we have got to resolve that, because it was not intended that we would have legislation like that, and emergency planning is a State's responsibility, and it is a county's responsibility, and it is the NRC's responsibility to see that it is right, and it is FEMA's responsibility to see that it is right.

Certainly, in a sense, we cannot eliminate Federal requirements that utilities have emergency plans in place. I don't think you are saying that, are you?

Mr. **Sholly**. Certainly not.

Senator **Simpson**. OK. Let's hope.

I am asking both of you—and we will try to conclude with this group. I asked each of you a number of questions about Shoreham.

Should a local—and you may each respond briefly, if you will—should a local government be able to demand as a prerequisite to its agreeing to cooperate in emergency planning that the utility agree to assist in the preparation of an emergency plan that goes beyond the requirements established by the NRC?

For instance, should a county be able to insist upon a 20-mile emergency planning zone which, in this instance, would span the total population from 100,000 to 500,000, and then saying that since it wasn't in the plan, that they really couldn't do it.

Should a local government be able to demand that a utility agree to certain requests that are totally unrelated or maybe—that is obviously a definition point—unrelated to emergency planning, but such as a full and independent safety inspection of the plant outside the scope of NRC or FEMA who have staffed up to do that for many years and that an independent group do it; or the construction of a similar nature, all as being conditions on the county's willingness to sign off on an emergency plan?

Should they be in a position of being able to assert that an emergency plan cannot be prepared and therefore prevent the utility from seeking an independent adjudication of that issue before an NRC board, as Suffolk County has insisted.

I am bouncing them all, and you can summarize them all.

Don't think that you don't point out the horror stories any more than any of us pick the horror stories. Bad cases, hard cases, make bad laws.

That is how you get to court.

How about the position of Suffolk County, that this operating license should be terminated, based only on the county's finding with no independent review, that no emergency plan can protect the public health?

How does this current emergency planning process essentially confer the authority raised in these questions on a county if the county chooses to abuse the process; is there any recourse for the utility?

I guess the whole thing comes from my review of the chronology of Shoreham, where, in 1968, there was an application for a construction permit to construct Shoreham.

That was 1968, and in 1973, it was granted; and then there was a definition period of emergency planning responsibilities from 1973 to 1978; county plan approved in 1978; additional things done in December of 1979; updated the plan.

They hired their own people in September 1980. February 1981, and here we are, and it all started back in 1968, and we are almost at the goal again, except for one little thing which is going to affect the people you like to represent, and that is $3 million down the drain.

Now, give your response to that, please, if you will.

Mr. EDELMAN. Mr. Chairman, who would you like to start?

Senator SIMPSON. Right there.

Mr. EDELMAN. Your summation of the issues pretty much goes directly to the statement that I submitted to this committee. We don't believe that the county should go beyond the authority of the regulations of what the NRC requires us to do.

We do believe that we should support the countries and the local governments to assist them in implementing the regulations that are imposed on them because our facility is physically located near them. That would be for the preparation of the plans, help them financially in that case and with whatever equipment they would need to implement that portion of the plan for our facility.

We do believe that the process as it now exists allows the counties and the local governments to abuse the process, because we have no recourse in the existing process as it is presently being implemented.

We are not really part of the overall review even of the plans when they go through the FEMA-NRC review. It is more ex officio.

I am not personally familiar with all of the details of Shoreham as you have elaborated, but it certainly shows that the intent has changed and changed several times during the course of that evaluation since the start of construction of the plant. It shows the impact and the effect of change in local governments when there is no set rules that they must follow that, then, as the government changes, their impact changes. So I would add that we, then, must have some rules that local and county governments must follow to be in conformance with the intent and the wishes of Congress and under the NRC for the implementation of emergency plans, both onsite and offsite, at a nuclear facility.

I guess that concludes my summary.

Senator SIMPSON. Thank you.

Mike?

Mr. FADEN. Mr. Chairman, I think some of the elements that you elaborated on in that background tell why Shoreham is, indeed, a hard case. It is a site set in the 1960's. It would never have been sited there today. We have got a small class, a transitional class, if you will, of plants that fit that category.

I don't think you are going to run into this problem with the next generation of powerplants, if there is one, because we have learned a lot since the 1960's in terms of siting.

The question now comes down to, is Federal authority going to be used to force that site and the plan for that site on a State and local government that doesn't believe that their population can be protected?

It is a hard case because, precisely as you say, $3 billion has been spent, more than that probably, although there are some questions about how much of that has been spent well. That is a side issue. That is an issue for the State public service commission in New York to determine.

I think the question of shutdown versus startup is also, in the end, a question for them to determine, because it is a cost question, and it is a need for power question.

The legislative question here is, do you federalize that question? Do you have the Federal Government come in and and say that plant goes ahead?

Or do you believe that process goes to the State government, believing that as Commissioner Gilinsky said, you have to factor that into the political process?

Senator SIMPSON. Did you have a comment?

Mr. SHOLLY. I might add one thing. Some of the issues you mentioned, the business about the simulator and some of the other more design related matters, I think you have to keep in mind the separation between emergency planning and the licensing and hearing process.

I am not too sure that those were as closely linked as maybe you indicated.

Mr. EDELMAN. Mr. Chairman, Mr. Buckman would like to make a comment.

Senator SIMPSON. Mr. Sholly, is that it?

Mr. SHOLLY. Yes, sir.

Senator SIMPSON. I think that in response to that, that is the issue. Nevertheless, as long as the county has the death grip on emergency planning, they can flow over into lots of other things.

Mr. SHOLLY. In those other areas, the final arbitrator there is the licensing board. I think it is a matter of the county and the utility taking their case to the licensing board. The licensing board can very easily relate to those issues.

Senator SIMPSON. That may be true, if they were not in the grip of the county.

Mr. BUCKMAN. Mr. Chairman, I would like to add to what Mr. Edelman said with regard to his response that the utility position is basically untenable. I agree with what he said that a local or a State organization should not be allowed to hold a death grip, as you have characterized it, a veto, with regard to the granting of an operating license or the continuation of an operating license. I would like to go back to something that Commissioner Gilinsky said earlier this morning when he indicated that while this situation existed, it was one that was OK and a veto would not be exercised without a great deal of forethought because of the costs involved.

I would point out that there are many instances where either, because of political considerations, the cost will be ignored or, because of very real considerations, the costs will be borne by someone else. A couple of examples of that would be situations where the emergency preparedness plans involve two States, and the utility's site is located in one State, or in many instances, there are counties involved in the preparation of emergency plans who do not have ratepayers, or at least not a significant number of ratepayers, associated with the plant involved.

So I think that in many instances there is an opportunity that exists for a State or local government to exercise its veto with very little cost associated to that body. I agree with what Mr. Edelman said, that that basic situation is not acceptable.

Senator SIMPSON. I think you all can see what I am trying to develop, I hope fairly, that we do not have a situation, as you say, where we are able to hold the State and local governments as hostage to the operation of a powerplant for which the responsible elected officials have legitimately concluded that no adequate emergency preparedness response plan will work and the opposite of that, that if section V cannot be implemented, the state or county government, then, is able to hold the utility hostage.

So where will we go? Will we push them back to the NRC? That is where the public, I think, would like to see it go. They will say, "What is the NRC there for? To protect the public health and safety."

So that is what we will look into, and I remember very well what Gary Hart and I were up to when we were involved in that, and I then remember carefully that when we went to conference, we came back differently, and don't you forget that.

In fact, the conferees specifically agreed to the option of the utility plan to avoid one thing: to avoid the probability of State or local veto. So back to the old drawing board, and I appreciate very much your testimony. It has been very helpful. Thank you.

Mr. **FADEN**. Thank you, Mr. Chairman.

Senator **SIMPSON**. The final panel is Don Godard, the administrator of siting, Department of Energy, State of Oregon, and Doran Hughes, director, emergency services offices of Kenosha County, Wis., please.

STATEMENT OF DON GODARD, ADMINISTRATOR OF SITING, DEPARTMENT OF ENERGY, STATE OF OREGON

Senator **SIMPSON**. Thank you. Mr. Godard. You might wish to proceed, if you will, please.

Mr. **GODARD**. Thank you, Mr. Chairman. I am Don Godard, from the Oregon Department of Energy, I am responsible for the safe operation of Oregon's Trojan Nuclear Plant and for its emergency response plan. I appreciate your invitation to be here today. We feel our bottom line is that what now exists is workable. We think that we have performed an adequate response plan.

I would like to provide some criticisms to show that we have not rolled over in the Northwest.

We have worked aggressively to minimize the nuclear operations, and before Trojan began operation we placed equal attention on the emergency response plan. We got three full time individuals that are devoted to that effort. We believe the most important factor in preventing incidents is utility management, not the equipment or system design. We think the NRC has overlooked this. It has not provided enough attention to utility management. The study came to similar conclusions and the IMPO group recently has provided some attention to this area, but insufficient, at this time, to really determine how effective they will be.

The emergency response plan at Trojan after the TMI accident was because of personal involvement. The fundamental change was to recognize that the basic decisions that have to be made should be based on the knowledge of plant conditions rather than actual project radiation levels around the plant. Radiation levels should and can be used to validate the decision made on plant conditions.

Focusing on the plant conditions allowed us to reach the conclusion that 10 miles is the proper radius to perform our bureau of response planning. Additionally, it allowed us to recognize our limits in our response plan. For example, no amount of planning can overcome extreme weather conditions or, in our case, extreme volcanic errruptions. Trojan is within 30 miles of Mount St. Helens. Perhaps that is one thing that has not been addressed today, is what constitutes an adequate plan. FEMA and NRC have criteria, but the fundamental question is how fast people have to be moved from there, and no one has ever answered that question or determined under what conditions people should be moved out.

I really do not think that question can be answered. I think there are certain shortcomings that will exist with the emergency response plan that cannot be overcome.

After 4 years of efforts to improve our plans, we have reached several conclusions: One relates to what you have been discussing all morning; that is, we believe that the utility, without assistance from the State or local governments, can provide the basic assistance needed to protect the public near the plant. We, at the State and local levels in my region, do not provide anything unique in terms of resources.

These functions, we think, are important for someone to provide site reference, educational material, local radio stations, and assistance with transportation. Any combination of the utility, State or local government could provide those resources.

In deed, if only the utility were involved for planning, the nuclear plant would be greatly simplified. There would be only one decisionmaker and only one source of public information. All those inconsistencies would come out, because the many organizations that would be involved would be avoided. Obviously we in Oregon choose to be involved in the decisionmaking and public information efforts around the plant. We would not ask you to do anything that would exclude the States from making that choice.

TMI illustrated the shortcomings in relying soley on the utility. Furthermore, we believe the State can communicate the significance of the incident to the broader audience that may be outside the immediate area of the plant.

The Federal role has been frustrated up to this time. We were particularly offended initially when the NRC came to Oregon and announced that it was going to improve State and local planning by working through the utility rather than directly with the State. Further, the 16 criteria that NRC and FEMA have adopted have blossomed into literally hundreds of regulations. These and other similar experiences would clearly conclude that the Federal Government should work with and not try to regulate State and local governments.

A few specific comments about the role of the Federal Government during the actual response: Our concern is that the Federal Government will arrive late simply because of the distances involved. To be at all helpful, their response has to fit into what is already going on and not by the plant. We do not believe the agencies understand that at this point. For example, in Oregon, the Governor makes the protective action decisions, and he is the most credible spokesperson for the people in Oregon. Yet NRC is not willing to provide a technical assistance support person to assist the Governor, and FEMA decisionmakers will not be with the Governor. Furthermore, FEMA publishes its own public information location separate from the Governor's. Finally, NRC intends to perform its own independent dope assessments rather than working with a unified State and utility effort. These offer little additional protection or help to the State or the public.

Thank you for the opportunity to make comments.

Senator SIMPSON. That was very refreshing. I have always found Oregonians, either their State legislators or their national legislators exercise a great deal of independence and confidence and irrationability sometimes, but you have been in this a long time in Oregon.

Mr. GODARD. Years, since before Trojan became operational in 1975.

Senator SIMPSON. We will come back to that.

Yes sir, please.

STATEMENT OF DORAN HUGHES, DIRECTOR, EMERGENCY SERVICES OFFICE, KENOSHA COUNTY, WIS.

Mr. HUGHES. Good morning, sir. I appreciate the opportunity of testifying at this hearing. My name is Doran Hughes, director of emergency government, Kenosha County, Wis. We are 3 miles from the Zion Nuclear Powerplant that is operated out of Zion, Ill. Before I go on to that, our plan, I would like to state a few things that are facts from my county which I have heard a lot mentioned this morning about the possibility of not regulating plants, there is a public law that says that there will be an office of civil defense and that we will develop disaster plans and periodically test these plans.

The State of Wisconsin also has a State statute that says that every county will have a Director of Emergency Government. In 1973, the title of civil defense was disbanded, and each State now seems to have their own titles.

Ours is emergency government. Our State statute says that we will have an office of emergency government and we will make plans and procedures for any type of incident and that we will test these plans.

Our county has gone further into it. They have hired me to do this planning. We do get Federal funds for planning in my office. I get up to 50 percent matching funds from the Federal Government every year. I think a lot of the States, counties, and cities also get this money. That our requirement is to develop plans and procedures to respond to any type disaster.

Now, when it comes to the nuclear powerplant, we knew we had a powerplant here near us. It was not bothering anybody, it was just another source of electricity, then the Three Mile Island incident happened, and they come out with a movie, the "China Syndrome," right at that time, and I think it upset a lot of people. We had a lot of concern in our county about that plant being that close. I think the people in Illinois did, too.

We have had to develop a plan. The Nuclear Regulatory Commission came out with 0654 and said we will develop a plan to respond to a nuclear powerplant accident, and it will be consistent with their regulations. We spent about 2 years writing that plan, and as far as we were concerned, it was just another incident that we should have a plan for in case there was an accident.

We have many things happen in Kenosha that we have plans for. We have liquid molten metal that travels through our major highways every day back and forth. It is liquid aluminum. This could spill and cause a bad accident at any time. We have tornados.

We have winter storms, we have everything. Writing a plan for the nuclear power plant, it was a problem. It was quite a task. We spent almost 2 years doing it.

I think it was a more serious plan than most of our plans. Tornado procedures are one thing, but an accident at a powerplant is something else. We do have close to a hundred thousand people to evacuate out of Kenosha County if there was a major accident at the plant: I do not know how many there are in Illinois. I think there are close to 400,000 people that have to be moved. Our main concern is the highways that we have to move these people on.

We have two major highways that go straight West. We can go northwest into Racine County which is one of our host areas, but the city of Racine we cannot go into. They do not have the buildings to take care of our people. We are mainly going straight west. We cannot go east because we are right on Lake Michigan. If we go South, we are running into the problem. So the fact is, we have two major routes that go out of Kenosha County. They go straight West, and they are terrible roads, both of them. There are a lot of curves and hills, and the roads are bad. There are a lot of accidents on the roads in normal traffic. The findings that were made, from three different surveys made on how long it would take to evacuate the population that we have. The nearest estimate is about 20 hours under ideal conditions. We do have some severe winters, I think that they were talking about a nice sunny day in August; when the traffic is slow, we could move these people in the 20-hour period.

But I do believe you could execute this plan. I think we could get everybody out if we had enough time. What we would have to do is use only one lane—these are two lane roads—and leave the one lane open for emergency traffic.

But I think we could do it. The problem is that there is a lot of things we would need help with. We would have to probably bring in ambulances from outlying cities in Wisconsin. We would need busses for transporting schoolchildren. We have busses, but we do not have nearly enough. We have two large hospitals in Kenosha that have 350 beds in each one of them. We have 13 nursing homes that have a lot of elderly people. We have an awful lot of people in the city of Kenosha that do not have any transportation of any type. We would have to furnish a lot of transportation.

I think the plan would work if we needed it.

Senator SIMPSON. That is very helpful, Mr. Hughes and Mr. Godard. It is too bad that some of the onlookers in these hearings do not stay to hear the testimony of two people who are deeply involved, on a daily basis, with the realities of life.

You both come from areas where these emergency plans, for your respective plants, Zion and Trojan, in Oregon, have been exercised on a number of different occasions.

How effective are these exercises?

In actually preparing State and local governments for carrying out an emergency plan, if they should be called upon to do so in the real world, and specifically, what level of confidence do you yourselves have as rather practical sounding people that these plans will be effective and really work in evacuating the populations around your plants if that should ever be called for?

I appreciate your response.

Mr. GODARD. Mr. Chairman, I believe that we do a lot in the emergency response plan writing and we write a lot of papers and plans, but I think in its essence, it is pretty simple.

Sirens will go off to alert people that something is wrong; if they have had prior information, to turn into a particular radio station. They will have information.

The evidence of Three Mile Island indicates that half the people will leave voluntarily just by knowing something is wrong without an invitation to leave.

I think we both make a lot of effort to make sure the Oregan River decision is consistent with the folks on the Washington river side.

I think if that decision is wrong, the public will recognize that deficiency and take appropriate action. I believe the plans can work. It is just simply a question of how gracefully it is done and who gets burned in the aftermath.

Senator SIMPSON. Burned?

Mr. GODDARD. Yes, sir.

Mr. HUGHES. Well, sir, we have tested our plan in Kenosha, Wis., on three different occasions for the Zion plant.

The first time we tested it, we had a minor problem which caused us to do it over again. The FEMA officials thought we should do it again.

The biggest part of the problem was, our plan is a county plan. It takes the city of Kenosha and 12 other municipalities in our county, I wrote the plan with the help of our emergency services people.

The leadership role in the emergency operating center at the time was our main problem in our plan when we were trying it, we have a city mayor and a county board chariman.

They both wanted to sit at the head table and be boss. It got to be kind of a conflict. Nobody knew who was running the show.

So FEMA felt that we should do it a second time. We did it a second time. We pushed the mayor over in the corner and asked him to sit quitely and watch the program.

The plan worked beautifully the second time with the county board chairman running it.

Now, the third time was January 18 of this year, and we have just elected a county executive. Our plan has been changed; the fifth time now this plan has been changed.

Now it says the county executive will be the leader in the emergency operating center. He will be in command, and now we have no more problems.

We had good results from our last test, the last one especially. I think that every time we test this plan, all the emergency services that are involved in the emergency operating center, they learn a little bit more about not only designing the plan, but our role in any type of disaster.

I think it is very beneficial.

Senator SIMPSON. That is interesting. I wanted to find out how effective FEMA had been in reviewing and approving your emergency plans and in evaluating your exercises.

Do you think they have been effective in the evaluation?

Do you think we should change the frequency of that emergency plan, those exercises as your national emergency management association group has suggested, or should we retain those yearly exercise periods?

Should there be any reconsideration of the role that FEMA plays in reviewing and approving?

You said, I think, that FEMA would be more effective in providing information rather than regulation, Mr. Godard.

Do you support a change in FEMA's role from the current one of making findings on State and local emergency plans to the role of advising State and local governments as well as the NRC on alternative approaches to emergency planning?

Mr. Godard. Mr. Chairman, a couple of questions that are, again, my bottom line is we can live within the existing framework. We have preferences, however.

We think that annual exercise is needed. I believe the flexibility can come about in the scope of that annual exercise. I think it is very important that the various decisionmakers participate in the annual exercise so they get used to one another and used to using the various procedures.

We don't think it is necessary to send in the paramilitary type of organizations, the State Police, National Guard, out into the field each year. They do that sort of thng routinely. That is not needed.

With respect to the FEMA role, we have expressed frustration in the past with the pararegulatory approach by FEMA. We think they would be most effective, particularly within our many jurisdictions involved, in trying to play arbitrary rather than trying to inflict a particular solution, on the problems.

Senator Simpson. Yes, sir?

Mr. Hughes. Well, sir, I would like to see the testing of a plan for our plant that we are involved in possibly every 2 years instead of every year. We have tested it three times now.

We have taken a lot of manpower out of their jobs. There is an awful lot of money involved, in time and manpower, we just finished this test in January, and now in January 1984 we have to do it again.

Honestly, I believe we have a coal fire plant that I am more worried about in our county than the Zion plant. I think the radiation level and a probable accident would be more from the coal fired plant than that of the nuclear plant.

I think Three Mile Island has scared the devil out of a lot of people, and there are so many requirements, I believe the plants are suffering and so are the localities where we have to go through this testing annually.

I think with a number of plants that are being built, I don't know how they are going to be able to test every one of these every year.

I wish they would cut it down to possibly 2 years. I wouldn't want it any longer than that, but I would think that 2 years would be sufficient.

As far as the FEMA role, I believe that FEMA manpower is probably stretched to the limit.

Their manpower; they are hiring outside people to come and watch these exercises. At the last exercise we had, we had people from Argonne Laboratories that were representing FEMA.

Now, when the exercise is all over, these people go back and make a report to FEMA, and then I get a written report from FEMA saying, "This is where you are deficient."

There were things that I showed the people from Argonne Laboratories that were there. They asked me questions, but all they had was a sheet. I don't think they even know what they are asking.

I showed them what we had, exactly what they wanted to see.

I don't know if they checked it in the right little box or not, but FEMA didn't get the right answer, anyway, and I got deficiencies. I don't appreciate that.

I think if they are going to hire outside people, they should train them to know what they are looking for.

Senator SIMPSON. Sounds reasonable.

Yes?

Mr. GODARD. If I could follow up on that, Mr. Chairman, we have experienced a similar situation. The problem we found was in getting back to FEMA, they wanted to play regulator. They only would make their observations and then make their conclusions; if they would be a participant and discuss with the people who actually ran the exercise, what they saw and what it meant in the final report, I think it would be more reflective of what actually went on.

Senator SIMPSON. I don't want to characterize that.

Are you maybe saying that there is abit of arrogance in connection with their activity? That is my word.

Mr. HUGHES. I didn't find any arrogance, but I found that they really weren't knowledgeable of what they were looking for.

Some of the questions asked me—one case was low-reading dosimeters for emergency workers.

I had three boxes of those dosimeters.

I showed them on the table we had them available. I also showed them in my storeroom right where they were, and I even let them hold them up and try them, yet I was deficient; they said, I didn't have low reading dosimeters. I don't understand how they got this report back to FEMA.

Senator SIMPSON. Did you have any of that? I don't want to characterize them, and that would be impossible and unfair of me, but you indicated they may not know what they are looking for, right?

Mr. GODARD. No, I think they know what they are looking for and they are not arrogant. But their job is not to go out and be a regulatory but to go out and measure how well the States performed.

Senator SIMPSON. Well, this is helpful. I am sure that they will be interested in this testimony, and I know they will.

So I thank you, very much, and I will submit some further questions in writing.

You have been very refreshing and thoughtful and articulate on the day-to-day operation of an emergency plan which, God forbid, when we need one, we will have the same human failures that happened, perhaps, that gave rise to it.

We don't always operate very well at the sign that says, "Walk slowly to the nearest exit," we humans.

So you have been very helpful.

Thank you, and thanks to the other witnesses.

I believe, without anything further, that concludes the hearing.

[Whereupon, at 12:55 p.m., the subcommittee recessed, to reconvene at the call of the Chair.]

[Statements submitted for the record and responses to written questions follow:]

RESPONSES FROM THE NUCLEAR REGULATORY COMMISSION TO WRITTEN QUESTIONS

QUESTION 1. What is and should be the responsibility, if any, of the federal government in the establishment and development of standards for off-site emergency preparedness plans for nuclear power plants? What federal agency is or should be responsible for this activity?

ANSWER.

Under the Atomic Energy Act of 1954, as amended, the responsibility for establishment and development of standards for protection of the public health and safety from radiological risks of nuclear power plants rests with the federal government. Under the Nuclear Regulatory Commission's (NRC) Authorization of Appropriations Act of 1980, P.L. 96-295, § 109, the NRC was charged with developing standards, in consultation with the Federal Emergency Management Agency (FEMA), for off-site emergency planning. Under presidential directive of December 7, 1979, FEMA was given lead responsibility with respect to off-site emergency planning. The emergency planning requirements embodied in 10 C.F.R. § 50.47 were developed by the NRC. Separate FEMA regulations applying the same basic offsite emergency planning standards, and establishing the FEMA process for evaluating offsite emergency preparedness were proposed in June 1980 (44 CFR 350). Additional guidance was provided in a joint NRC/FEMA document in NUREG-0654/FEMA-REP-1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants." Furthermore, under a memorandum of understanding between NRC and FEMA, 45 Fed. Reg. 82713 (1980), the two agencies have established a cooperative framework for review of individual plans against the federal standards which gives FEMA lead responsibility with respect to off-site emergency planning. The Commission has not determined that any fundamental changes in the framework for developing standards for off-site emergency preparedness are needed, although the Chairman has asked the Executive Director's Office to see whether changes are needed in the Memorandum of Understanding.

It is appropriate for the NRC to develop standards for protection against radiological hazard from nuclear plant accidents. In doing this the NRC should use relevant criteria developed by its own research programs as well as criteria developed by EPA and HHS. FEMA should retain responsibility for the development of standards for offsite emergency plans to respond to nuclear plant accidents.

Chairman Palladino adds that one important NRC research program of interest that might affect the emergency planning standards is the study of the radioactive source term.

QUESTION 2(a). What is and should be the responsibility of State government if any, in the development and establishment of standards for offsite emergency preparedness plans for nuclear power plants?

ANSWER.

State governments have no direct responsibility in the development and establishment of standards for offsite emergency preparedness plans for nuclear power plants preparatory to Federal licensing of those plants. However, State laws and the various State emergency response agencies may have developed their own guidance documents on the type, level of detail, and format for information included in their emergency plans.

The Federal regulatory standards for offsite emergency preparedness plans as a condition for Federal licensing of nuclear power plants were developed jointly by the Federal Emergency Management Agency (FEMA) and the Nuclear Regulatory Commission (NRC). FEMA's regulations were published as a proposed rule, 44 CFR Part 350, Section 350.5 on 6/24/80, and as a revised proposed rule 8/19/82 (47 FR 3686) and NRC's were published as a final rule, 10 CFR, Part 50.47. Emergency planning guidance is also provided by the NRC and FEMA in NUREG-0654/FEMA-REP-1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants".

Both the final NRC regulations and the joint FEMA-NRC final guidance were subjected to intensive public comment and critique, including a series of four regional workshops to which State Government emergency planning officials were specifically invited. In addition, State officials addressed the Commissioners during their consideration of the NRC regulations. The Commission gave great weight to the views of these officials, and believed that its standards properly accommodated the needs of a Federal licensing program and state interests. This involvement is the appropriate level for State governments with regard to establishing the standards.

QUESTION 2(b). Should State governments be allowed to enact more rigid standards or requirements than those imposed by the Federal government?

ANSWER.

This is a policy question appropriately addressed by Congress, not by NRC. Currently the Federal government under the Atomic Energy Act has exclusive control over regulation of nuclear plants in connection with the protection of the public health and safety from radiological risks. We will implement the law, which currently precludes States from establishing more rigorous standards based on protection against radiological hazards.

Since each state has the responsibility to protect its citizens, it must establish the organizational capabilities to protect its public. Each of the various states has chosen to carry out its responsibilities in a variety of ways through Civil Defense or disaster services agencies who establish policies and standards to carry out emergency functions.

Commissioner Asselstine notes that this response is simply an incorrect statement of the law. Nothing in the Atomic Energy Act prohibits States from developing and implementing emergency preparedness plans that exceed NRC and FEMA requirements established for the purposes of making Federal safety and licensing decisions.

Commissioner Ahearne requests the reader to note the difference between the Commission phrase ("establishing more rigorous standards based on protection against radiological hazards") and Commissioner Asselstine's phrase ("established for the purposes of making Federal safety and licensing decisions").

QUESTION 3(a) What is and should be the responsibility, if any, of local governments, in the development and establishment of standards for offsite emergency preparedness plans for nuclear power plants?

ANSWER.

The standards for offsite emergency preparedness plans for nuclear power plants were developed jointly by the Federal Emergency Management Agency (FEMA) and the Nuclear Regulatory Commission (NRC) and were established and published by FEMA in their proposed rule 44 CFR Part 350, Section 350.5. More detailed emergency planning guidance is provided by the NRC and FEMA in NUREG-0654/FEMA-REP-1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants". These regulations and guidance documents were initially published in draft form to provide opportunity for public comment. The local governments did participate in the development of these standards in the same way that State governments did, as described in the response to Question 2(a). This involvement is the appropriate level for local governments with regard to establishing the standards, and should continue.

QUESTION 3.

QUESTION 3(b) Should local governments be allowed to impose more stringent standards or requirements than those required by either the Federal or State governments?

ANSWER.

The Federal government under the Atomic Energy Act has exclusive control over regulation of nuclear plants in connection with the protection of the public health and safety from radiological risks.

For purposes of Federal licensing of nuclear plants, the standards or requirements of the Federal government are controlling. However, nothing precludes local governments from imposing other standards within areas of local concerns and authority. These other standards would not be considered by the Federal Government in the licensing process for a plant. This involvement is the appropriate level for local government with regard to establishing the standards and should continue.

This question raises a general policy question appropriately addressed by Congress, not NRC. We will implement the law, which currently precludes local governments from establishing more rigorous standards based on protection against radiological hazards.

QUESTION 3.

QUESTION 3(c) What is a local government for purposes of this question?

ANSWER.

A local government is defined as the local government agency or office having the principal or lead role in emergency planning and preparedness. Generally this will be the County government. Other local government entities (e.g. towns, cities, municipalities, etc.), are considered to be sub-organizations with supportive roles to the principal or lead local government organization responsible for emergency planning and preparedness. In some cases there will be more than one lead organization at the local level, but designation of one lead organization is preferable (p. 5-2, NUREG-0654, FEMA-REP-1, Rev. 1).

QUESTION 4. What is and should be the responsibility of the federal government, if any, in the preparation of off-site emergency preparedness plans for nuclear power plants?

ANSWER.

The federal government does not directly prepare state, local, or utility off-site emergency plans. However, the NRC and FEMA provided guidance to State and local governments for preparation of offsite emergency plans in NUREG-0654/FEMA-REP-1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants." Furthermore, Executive Order 12148 charges FEMA with "working with State and local governments and the private sector to stimulate vigorous participation in civil emergency preparedness mitigation, response, and recovery programs." (Section 2-104).

FEMA should play the role of negotiator and actively work to resolve problems in developing emergency plans. This would entail dealing directly with state and local governments and the utilities. FEMA's proposed regulations indicate that FEMA regional staff "will be made available upon request to assist State and localities in the development of plans." See 45 Fed. Reg. 42344 (proposed rule 44 C.F.R. § 350.6) (1980).

QUESTION 5. What is and should be the responsibility of State if any, in the preparation of offsite emergency preparedness plans for nuclear power plants?

ANSWER.

An integrated approach to the development of offsite radiological emergency plans by States, localities and the utilities with the assistance of the Federal Government, is the approach most likely to provide the best protection to the public. As a practical matter, the response capabilities and resources of the State are usually far greater than any single local government. Consequently, the State must develop adequate plans to assure that sufficient support is available to the local governments to augment their own capabilities or to provide essential capabilities that may be outside the scope of the capabilities of the local governments (e.g., offsite radiological monitoring personnel and equipment). Local governments, being the most familiar with local emergency response needs and capabilities, have a key role in preparing local offsite emergency preparedness plans. The State should also be prepared to prepare an entire plan if the local government refuses to do so.

There is no precise formula delineating the proper levels of responsibility. Whether the State or the local government has the primary responsibility to coordinate emergency preparedness activities is a function of State law and varies from State to State. The NRC and FEMA's primary concern is that offsite emergency plans collectively achieve the objectives of the 16 Planning Standards in 10 CFR 50.47(b) and 44 CFR 350.5.

QUESTION 6. What is and should be the responsibility of local governments, if any, in the preparation of off-site emergency preparedness plans for nuclear power plants?

ANSWER.

An integrated approach to the development of offsite radiological emergency plans by States, localities and the utilities with the assistance of the Federal Government, is the approach most likely to provide the best protection to the public. Local governments, being the most familiar with local emergency response needs and capabilities, have a key role in preparing local offsite emergency preparedness plans. Local governments should therefore be involved from the initial planning stage in preparing emergency plans. If the local area is large enough, the local government should develop the plan for its area. If not, then the local government should work closely with whatever organization is developing the plan that will include the local government's area. However, the response capabilities and resources of the State are far greater than any single local government, and the State must develop adequate plans to assure that sufficient support is available to the local governments to augment their own capabilities or to provide essential capabilities that may be outside the scope of the capabilities of the local governments (e.g., offsite radiological monitoring personnel and equipment).

QUESTION 7. What is and should be the responsibility of the federal government, if any, for the implementation of off-site emergency preparedness plans for nuclear power plants?

ANSWER.

The implementation of off-site emergency plans is a state, local, and licensee responsibility. The federal government is responsible only for the review of the plans against the federal standards for their adequacy and for their capability to be implemented . In the event of an actual emergency the federal government will, however, provide advice and assistance to the state, local, and utility officials responsible for implementation. This advice and assistance may be provided by a number of different agencies, including the NRC, FEMA, DOE, and EPA. This allocation of responsibilities is appropriate.

QUESTION 8. What is and should be the responsibility of the State government, if any, for the implementation of offsite emergency preparedness plans for nuclear power plants?

ANSWER.

An integrated approach to the implementation of offsite radiological emergency plans by States, localities and the utilities with the assistance of the Federal Government, is the approach most likely to provide the best protection to the public. The degree of planning and response between State and local governments will vary from site to site depending on capabilities, resources, statutes and geographical relationships.

QUESTION 9. What is and should be the responsibility of local governments, if any, for the implementation of offsite emergency preparedness plans for nuclear power plants?

ANSWER.

See response to Question 8.

An integrated approach to the implementation of offsite radiological emergency plans by States, localities and the utilities with the assistance of the Federal Government, is the approach most likely to provide the best protection to the public. The degree of planning and response between State and local governments will vary from site to site depending on capabilities, resources, statutes, and geographical relationships. The local government responsibilities in implementation should be similar to the responsibilities in planning. These responsibilities include maintaining a consistent approach for emergency planning efforts.

Chairman Palladino considers this approach should not be subject to change as newly elected officials take office.

QUESTION 10. What is and should be the responsibility of the federal government, if any, in determining the adequacy and implementability of an off-site emergency preparedness plan for nuclear power plants?

ANSWER.

Under the Atomic Energy Act and 10 C.F.R. § 50.47, the responsibility for determining the adequacy and capability to be implemented of off-site emergency preparedness plans rests with the federal government. As noted above, by presidential directive FEMA is given lead responsibility for making the initial determination on the adequacy and capability of implementation of off-site emergency planning. The NRC will make an ultimate finding prior to issuing an operating license that there is reasonable assurance that public health and safety will not be endangered by operation of a nuclear power plant. The NRC will make this finding based upon a review of the FEMA determination with respect to off-site planning and on the NRC's review of on-site planning.

Commissioner Asselstine believes that the present allocation of Federal responsibilities between NRC and FEMA is appropriate and workable.

QUESTION 11. What is and should be the responsibility, if any, of State government in determining the adequacy and implementability of an offsite emergency preparedness plan for a nuclear power plant?

ANSWER.

State and local governments have traditionally carried out their responsibilities for protecting their citizens from natural and other life threatening disasters in the preparation and implementation of emergency plans for these disasters. State and local governments generally prepare the most efficacious plan to protect their residents. In the Federal licensing of nuclear plants Federal standards are used in determining the adequacy and implementability of the offsite emergency response plan.

State governments do have and should have the responsibility of reviewing, and providing their views on the capability of local government offsite emergency plans to be implemented. FEMA has the expertise to independently review adequacy and should make the final determination of adequacy for both State and local plans for purposes of Federal licensing decisions. State Governments do have and should have the right to participate in NRC licensing hearings on the adequacy of offsite emergency planning and preparedness.

QUESTION 12. What is and should be the responsibility, if any, of local governments in determining the adequacy and implementability of and offsite emergency preparedness plan for a nuclear power plant?

ANSWER.

Local governments have the responsibility to prepare and implement their plans and therefore cannot independently assess them. Local governments should also have the responsibility to provide their views on whether State or local plans, or implementation of those plans, can or cannot be accomplished. This documentation and determination should then be submitted to FEMA for the final independent evaluation and determination. [See response to Question 11.] Local governments should also have the right to participate in NRC licensing hearings on the adequacy of offsite emergency planning and preparedness.

QUESTION 13. What is and should be the responsibility of the federal government, if any, for financing the costs of development and implementation of an off-site emergency preparedness plan for a nuclear power plant?

ANSWER.

The question of who should finance these costs is a policy question outside the NRC's responsibilities. However, it should be noted that the NRC currently has no authority, and should have no authority, to finance the costs of development or implementation of off-site emergency plans for nuclear power plants or to determine what costs are appropriate. FEMA has provided some grants, in the form of matching funds, for disaster planning. (See NUREG-0553, BEYOND DEFENSE-IN-DEPTH: COST AND FUNDING OF STATE AND LOCAL GOVERNMENT RADIOLOGICAL EMERGENCY RESPONSE PLANS AND PREPAREDNESS IN SUPPORT OF COMMERCIAL NUCLEAR POWER STATIONS) For this reason, distribution of Federal funds for offsite radiological emergency planning, regardless of the source of funds, should be under FEMA's authority.

Commissioners Ahearne and Asselstine add that they believe these are costs associated with the nuclear power plant and as such should be borne by those who use the electricity generated by the plant.

Chairman Palladino adds that the Congress may wish to consider having responsibility included in the following four points:

1. Provide incentives for each state to complete necessary emergency planning and preparedness in accordance with FEMA and NRC requirements, through a carrot and stick approach.

2. As part of the carrot and stick approach, provide incentives for local government and state government to document and submit to FEMA for its comment any decision regarding the non-feasibility of providing adequate emergency plans.

3. In addition to the normal revenues that local and state authorities are now empowered to obtain from utilities, consider providing additional federal funding and federal personnel to assist the states in emergency planning and preparedness.

4. In addition to legislation which provides for consideration of the utility emergency plans, consideration should be given to deputizing utility personnel who will participate in that plan.

QUESTION 14. What is and should be the responsibility of the State government, if any, for financing the costs of development and implementation of an offsite emergency preparedness plan for a nuclear power plant?

ANSWER.

The State government is generally responsible for the costs of development and implementation of the various programs required to protect the health and safety of their citizens and their property. This includes the development and implementation of an offsite emergency preparedness plan.

Commissioners Ahearne and Asselstine believe that the costs should be borne by those who use the electricity generated by the plant. Some of those funds should be provided to the State for its emergency preparedness costs.

QUESTION 15. What is and should be the responsibility of the local governments, if any, for financing the costs of development and implementation of an offsite emergency preparedness plan for a nuclear power plant?

ANSWER.

Local governments have, and should continue to have, a responsibility, commensurate with their capability, for financing the costs of development and implementation of local offsite emergency preparedness plans.

Commissioners Ahearne and Asselstine believe that the costs should be borne by those who use the electricity generated by the plant. Some of those funds should be provided to local governments for their emergency preparedness costs.

SENATOR SIMPSON'S QUESTIONS

QUESTION 1. To what extent are the NRC's current emergency planning requirements directly related to protection of the public health and safety from radiological risk, and therefore deemed preemptive of local requirements in those areas?

ANSWER

The fundamental objective of the NRC's emergency planning regulations is to enhance protection of public health and safety in the event of a radiological emergency. This objective was explained by the Commission at the time of the proposed emergency planning rule:

> "The proposed rule is predicated on the Commission's considered judgment in the aftermath of the accident at Three Mile Island that safe siting and design-engineered features alone do not optimize protection of the public health and safety. Before the accident it was thought that adequate siting in accordance with existing staff guidance coupled with the defense-in-depth approach to design would be the primary public protection. Emergency planning was conceived as a secondary but additional measure to be exercised in the unlikely event that an accident would happen. The Commission's perspective was severely altered by the unexpected sequence of events that occurred at Three Mile Island. The accident showed

QUESTION 1.

clearly that the protection provided by siting and engineered safety features must be bolstered by the ability to take protective measures during the course of an accident. The accident also showed clearly that on-site conditions and actions, even if they do not cause significant off-site radiological consequences, will affect the way the various State and local entities react to protect the public from dangers, real or imagined, associated with the accident. A conclusion the Commission draws from this is that in carrying out its statutory mandate to protect the public health and safety, the Commission must be in a position to know that off-site governmental plans have been reviewed and found adequate. The Commission finds that the public can be protected within the framework of the Atomic Energy Act only if additional attention is given to emergency response planning."

44 Fed. Reg. 75167, 75169 (1979).

Under the Atomic Energy Act of 1954, the federal government, through the NRC, maintains complete control over regulation of nuclear plants aimed at protection of the public health and safety from radiological risks. Pacific Gas & Electric Co., et al. v. State Energy Resources Conservation and Development Commission, et al., No. 81-1945 ____ U.S. ____, Slip op. at 18-20 (April 20, 1983). Local requirements in this area are preempted.

QUESTION 2. Is the Commission's ten mile "emergency planning zone" based upon an assessment of the radiological risk posed by a nuclear power plant and, if so, are State and local governments preempted from establishing more stringent emergency planning zones under the Atomic Energy Act?

ANSWER.

The ten mile Emergency Planning Zone (EPZ) is based upon an assessment of the radiological risk posed by nuclear power plants. Specifically, it was the consensus of the NRC/EPA Task Force on Emergency Planning that plans should be based on a spectrum of accidents, including the more severe design basis accidents and the accident spectrum analyzed in the Reactor Safety Study (WASH-1400). The basis for describing the EPZ's is contained in NUREG-0396, "Planning Basis for Development of State and Local Government Radiological Emergency Responses", 10 CFR 50.47(c)(2). For the purpose of Federal regulation and the licensing of nuclear plants, State and local governments are preempted from establishing an EPZ on any other basis. However, that does not give the NRC the power to force a State or locality to adopt or implement an emergency plan, or to prohibit a State or locality from choosing a larger zone for its own purposes. It does however preempt State and local governments from establishing larger zones under the Atomic Energy Act.

QUESTION 3. According to a Petition for Rulemaking filed with the Commission by the National Emergency Management Association on March 17, 1982, this group -- whose membership consists of directors of State emergency services programs -- has recommended a reduction in the frequency of emergency plan exercises. They argue that "the requirement for an annual exercise at each nuclear power plant site within a state is imposing an impossible burden on State resources." Does the Commission concur with this position, and what action has the Commission taken on the petition?

ANSWER.

In February of 1982, the staff provided a recommendation to the Commission in response to requests of FEMA that frequency of offsite exercises should be changed from annually to every two years. The Commission did not approve the recommendation, but requested that the staff reevaluate the issue after a year's experience and return to the Commission. The staff has submitted its proposal to the Commission. The Commission has that reevaluation under consideration and will act on it shortly.

QUESTION 4. Under the Commission's current regulations, FEMA's finding on offsite preparedness is treated as a "rebuttable presumption" in NRC's licensing proceedings. What actual evidentiary weight does this confer on the FEMA finding, and has this been an effective tool for resolving emergency planning issues through the use of summary disposition motions or other procedures?

ANSWER.

As in all civil actions, the "rebuttable presumption" created by FEMA's findings on offsite emergency preparedness serves to place on the party challenging the finding the burden of going forward with evidence to rebut or meet the finding. It does not, however, shift the ultimate burden of persuasion from the party on whom it would ordinarily rest. See Fed. Rule Evidence § 301. In an NRC proceeding that burden rests with the Applicant for a license. See Administrative Procedure Act, § 7(d), 5 U.S.C. § 556(d). Thus, while the rebuttable presumption shifts the burden of going forward on the particular matters to which it attaches, it does not shift the ultimate burden of proof from the Applicant who is required to show that he meets the requisites for a license including the requirement that offsite emergency preparedness must be sufficient to provide reasonable assurance that the facility can be operated without endangering public health and safety. See also Metropolitan

QUESTION 4.

Edison Co., [Three Mile Island Nuclear Station, Unit 1], LBP-81-59, 14 NRC 1211, 1462-1466 (1981).

The rebuttable presumption created by FEMA's findings has provided only limited assistance in resolving emergency planning issues through the use of motions for summary disposition. Summary disposition under the Commission's regulations is typically invoked prior to the hearing. Summary disposition will be granted only if the motion and other documents on file in the proceeding demonstrate that there is "no genuine issue as to material fact." See 10 C.F.R § 2.749. In most NRC proceedings where offsite emergency planning has been in issue, the questions involved are factual matters which are in most cases disputed by some or all of the parties. Thus, a rebuttable presumption on the validity of FEMA findings alone does not demonstrate that there is no issue of material fact in the proceeding. Summary disposition will only be granted where written material and affidavits submitted in connection with such a motion demonstrate that there is no evidentiary basis on which to challenge FEMA's findings.

QUESTION 5. It has been widely reported that the recently released "Sandia Study" concludes that accident consequences are, in fact, much greater than had previously been estimated. Is this an accurate description of the Sandia report, and isn't it true that this study reconfirms the conservatisms in the Commission's emergency planning requirements?

ANSWER.

The picture of nuclear accident probability and consequence estimates presented by many news media reports with regard to the study entitled "Technical Guidance for Siting Criteria Development," NUREG/CR-2239, December 1982, by Sandia National Laboratories (SNL) was distorted and incomplete. A discussion follows which addresses:

- The objectives of Sandia's study;
- The misinterpretation that the consequence estimates are applicable to actual operating reactors and that calculated risk extremes for "low probability/high consequence" accidents are substantially larger than previous predictions; and

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- Probabilistic risk analysis for severe accidents (e.g., core meltdown and atmospheric release) and modeling uncertainty, including emergency response conservatisms used in the study.

Sandia Study Objectives

The purpose of the Sandia study was to develop technical guidance to support the formulation and comparison of possible future siting criteria for nuclear power plants. It includes information on (i) consequences of hypothetical severe accidents; (ii) characteristics of population distributions around current reactor sites; (iii) site availability within the continental United States based on population density, seismicity, topography, water availability and land-use restrictions; and (iv) socioeconomic impacts of reactor siting. The Sandia study is not a new generic analysis of the risk of reactor accidents; it merely assumes the occurrence of severe core melt accidents of different severity and calculates the range of possible consequences, including early fatalities, early illnesses, and latent cancers at U.S. reactor sites to examine differences among sites. There was no effort in this particular work to assess offsite emergency planning requirements nor to estimate accident probabilities. Further, there was no attempt to include site specific emergency response scenarios; rather, in all cases very pessimistic emergency response assumptions were used.

QUESTION 5.

The Sandia report carefully states that the results presented in the report do not represent potential accident risks at existing reactor/site combinations. That is, the study did not estimate specific accident sequences of events and source terms for individual power plants. The report examined possible accident consequences for specific site characteristics (e.g., population and meteorology) coupled with a generic plant. It was assumed that a standard plant (of the same size) was operating at 91 existing sites. The intent was to explore site differences using a standard set of source terms which are essentially independent of particular reactor design considerations and published in NUREG-0773, "The Development of Severe Reactor Accident Source Terms: 1967-1981." Site-to-site variations in potential consequences were illuminated thereby.

Although the Sandia study provides us with useful analyses of the importance of various siting factors, it does not change our overall perception of reactor risk. On the contrary, the results presented in this report are consistent with those presented in the Reactor Safety Study (WASH-1400) and later NRC and industry publications. The results in the Sandia study also give us assurance that our present reactor siting criteria are not seriously flawed and that it is reasonable to postpone further consideration of changes in siting criteria until new information on radioactive source terms (i.e., probabilities of the amounts and types of radioactive materials and their timing of release outside of a plant in an accident situation) is available.

QUESTION 5.

On Worst Case Accidents

The types of severe accidents reported in the Sandia study have been considered in the development of a basis for emergency planning requirements. The intent of emergency planning requirements has been to provide a flexible planning framework to accommodate a spectrum of accidents, rather than any one particular accident scenario, so that a plan for a design-basis event can be expanded to cope with the less probable, more serious events, if need be. It is judged that nuclear power plants can operate safely without unreasonably endangering public health and safety, since both the probability of the severe consequences are very small *and* accident calculations in the Sandia study incorporate a conservative treatment (i.e., resulting in an overstatement of the consequences) of the source term and emergency response assumptions as described below. The Sandia study did not perform site-specific evaluations of emergency planning criteria; however, the consequence calculations indicate that a timely response to a very serious accident can significantly reduce expected early fatalities and injuries.

The likelihood of occurrence of these most severe consequences is extremely low. The exact value of this low probability is uncertain. But the fact that it is very low is beyond reasonable dispute, since the joint occurrence of a combination of many low probability events would be necessary. For use *with* siting report probabilities, the report notes that the annual

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probability of large scale core melt at a typical plant is 1 chance in 10,000 and that the probability of large scale release resulting from a full scale core melt is 1 chance in 100,000. These probabilities are supported reasonably well by existing risk studies including both predictive studies (probabilistic risk analyses) and analysis of operating experience. The siting study calculates further probabilities based on meteorology and population data. The analyses indicate about 1 chance in 10,000 that weather sequences and wind direction could combine to produce the scenarios which lead to the maximum calculated consequences. Thus, the staff estimates that these maximum calculated annual consequences are about 1 chance in 1 billion. Moreover, there is a pessimism in these consequence calculations due to the conservative treatment of radioactive release source terms. Major research programs by NRC and others are investigating just how much lower our release estimates should be.

Futhermore, the calculations incorporate a conservative bias in the emergency response assumptions for the extreme cases which leads to an overestimation of the maximum calculated number of deaths or injuries. For example, the siting analysis study assumes that individuals beyond a ten-mile evacuation radius from the facility would not be evacuated or seek more effective sheltering, but would go about their normal activities for 24 hours after the released radioactivity had reached them. Peak estimates of early fatalities and injuries are caused by rainout

QUESTION 5.

of radioactivity from the atmopheric plume onto cities located more than ten miles from the reactor. Considering the extremely low probability of the accident scenarios postulated for the SNL sensitivity study, and the extremely pessimistic emergency response assumptions, the Commission feels that more-reasonable assumptions than those used in the SNL study should serve as a basis for emergency planning requirements.

Recommended guidance has been given for use in radiological emergency response plans at commerical nuclear power plants by an EPA/NRC Task Force (NUREG-0396; 1978). The accident at Three Mile Island (TMI) starting on March 28, 1979, initiated a reexamination of emergency response preparedness including the Federal and State roles. Substantial improvements to emergency preparedness levels around nuclear power plants were recommended in the Kemeny and Rogovin (NUREG/CR-1250) and GAO reports. New emergency planning requirements for an expanded emergency planning basis were conducted in response to these post-TMI recommendations. All in all, it is believed that emergency planning criteria are adequate and do include a consideration of the risk (probability and consequences) of worst-case accidents.

SENATOR HART'S QUESTIONS

QUESTION 6. NUREG-1856 gives estimates of evacuation times within a 10-mile radius around each operating nuclear power plant. For normal conditions, the times range from 0.9 hours at the Yankee Rowe plant to 14 hours at the Zion plant. For adverse conditions, the times run as high as 10 to 20 hours for a number of sites.

a. For either normal or adverse weather conditions, does the NRC have any regulation, criterion, or guideline that establishes what constitutes an acceptable evacuation time?

ANSWER.

No. The Commission's Regulations at 10 CFR Part 50, Appendix E, Section IV require only that "The nuclear power reactor operating licensee applicant shall also provide an analysis of the time required to evacuate and for taking other protective actions for various sectors and distances within the plume exposure pathway EPZ for transient and permanent populations." The regulation does not specify any evacuation times to be considered acceptable. Appendix 4 to NUREG-0654 (Regulatory Guide 1.101 Revision 2) provides staff guidance as to the type of information needed in the evacuation time estimates (ETEs) and methods for how the information might be presented but again does not specify acceptable evacuation times.

QUESTION 6.

The NRC requires that evacuation time estimates be made for two reasons. First, during the process of making the estimates, any situations requiring special attention during the planning process can be identified. For example, by providing traffic controls at particular intersections, evacuation times can be substantially reduced by minimizing the queues formed at these intersections, thus providing an optimum use of available resources. Second, during the course of an accident, evacuation time estimates made in advance for various conditions can provide decisionmakers an important tool to make decisions on the most appropriate protective action (evacuation, sheltering, or sheltering followed by later relocation) to minimize exposures to the population.

QUESTION 6.

b. If not, does this mean that the NRC has determined that every site, even under the worst of conditions, is evacuable? Are some sites evacuable and others not? Please list and discuss those sites that pose the most difficulty for evacuation, particularly under adverse conditions.

ANSWER.

The conclusion of the joint NRC/EPA task force that addressed this point during the development of NUREG-0396/EPA 520/1-78-016, "Planning Basis for the Development of State and local government Radiological Emergency Response Plans in Support of Light Water Nuclear Power Plants," was that the current guidance on population density for nuclear power plant sites in use by the NRC is adequate to generally assure that evacuation is a feasable option under normal weather conditions at all sites. Under certain conditions (blizzards, floods, earthquakes), evacuation may not be feasible or desirable, and under all weather conditions, sheltering may be a preferred alternative. Various gradations of such conditions or other circumstances which could be postulated for particular sites make evacuation times not specifically predictable in advance within wide margins. In general, the sites that pose the most difficulty for evacuation, under both normal and adverse weather conditions, are the sites

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with the highest permanent and transient population densities, e.g., Zion, Indian Point, Limerick, Three Mile Island, Beaver Valley, Millstone, Shoreham and Seabrook.

QUESTION 6.

c.. NUREG-0654 states, "The range of times between the onset of accident conditions and the start of a major release is on the order of one-half hour to several hours. The subsequent time period over which radioactive (sic) may be expected to be released is on the order of one-half hour to a few days." Given these facts, why has the NRC not established a set evacuation time, or at least guidance for what constitutes an acceptable evacuation time?

ANSWER.

As explained in part in the answer to Question 5, the Commission did not establish an acceptable evacuation time because even the best emergency preparedness cannot assure that severe health effects or even fatalities will not occur for the worst case accidents. There is always some accident that can be postulated where actions for the public could not be taken fast enough to avoid fatalities, although such events would be of extremely low likelihood. A finding that evacuations can be carried out in a particular length of time does not therefore provide assurance that health effects will not be incurred or even that health effects will be minimized in any particular case. In a severe event, the best course of action to minimize health effects may well be sheltering rather than evacuation. The time taken to

make protective action decisions and to communicate with the public, which is specified as a goal in the NRC regulations, is therefore more important than a calculated evacuation time which is necessarily highly dependent on the assumptions made as to weather and time of day.

QUESTION 7. What is the status of NRC's review of the application for a license to operate the Shoreham nuclear power plant? Will the question of adequacy of the offsite emergency planning be argued before the Atomic Safety and Licensing Board? If not, why not? If not, how will it be resolved?

ANSWER.

The NRC staff review of the application for a license to operate the Shoreham plant is nearing completion on all issues except offsite emergency planning. The NRC Staff has issued a Safety Evaluation Report and three supplements completing the Staff review of nearly all issues. Approximately 50 contentions were placed in controversy by the Intervenors before the Atomic Safety and Licensing Board. All of these issues have now been either litigated before the Board or settled by the parties. The Licensing Board is expected to issue a partial initial decision on these issues by mid-summer 1983.

The Licensing Board currently expects to litigate the question of adequacy of offsite emergency planning this summer. On April 20, 1983, the Board issued a Memorandum and Order stating that the NRC, under 10 C.F.R. § 50.47(c)(1) and Section 5 of the 1982/83 Authorization Act, has the authority to review a utility-submitted offsite plan in the absence of a state or locally approved plan. This decision was referred, through the Appeal Board, to the Commission for its review and in CLI-83-13, issued on May 12, 1983, the Commission declared that it agreed with the Licensing Board that adequacy of a utility plan could be considered by the agency. LILCO has indicated that it is developing such a plan for Shoreham and that the plan will be submitted for NRC Staff and FEMA review in May. When the plan is submitted the Intervenors will be given the opportunity to draft contentions for litigation before the Atomic Safety and Licensing Board. An exact litigation schedule for these issues has not yet been established.

QUESTION 8. Does the NRC have the authority to consider licensing a nuclear power plant to operate where there exists a utility emergency response plan, but no local or state emergency response plan?

ANSWER.

As explained in the response to Question 7 submitted for the record in the Hearing on April 15, 1983, Section 5 of the 1982/83 Authorization Act provides the NRC with authority to consider the adequacy of a utility's offsite emergency response plan in the absence of a state or local plan. The Commission's regulations (10 C.F.R. § 50.47(c)(1)), are consistent with this authority. As is indicated in the answers to Questions 1 and 7, this authority has recently been relied upon by the Atomic Safety and Licensing Board conducting the Shoreham proceeding. (See attachment A) In the event no State or local emergency plans are available, the substitute utility plan together with its implementation must be found adequate to provide reasonable assurance that the public health and safety is not endangered by the operation of the facility concerned (P.L. 97-415, § 5). This assessment will depend on the circumstances of the particular case.

QUESTION 8.
Attachment A

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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

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COMMISSIONERS:

Nunzio J. Palladino, Chairman
Victor Gilinsky
John F. Ahearne
Thomas M. Roberts
James K. Asselstine

In the Matter of

LONG ISLAND LIGHTING COMPANY

(Shoreham Nuclear Power Station, Unit 1)

No. 50-322-OL

Memorandum and Order
(CLI-83-13)

By order dated April 20, 1983, the Atomic Safety and Licensing Board conducting the operating license proceeding for the Shoreham Nuclear Power Station denied a motion filed by Suffolk County on February 23, 1983, asking the Board to terminate the proceeding.[1] Long Island Lighting Co. (Shoreham Nuclear Power Station, Unit 1), LBP-83-22, 17 NRC ____ (Apr. 20, 1983). The predicate for the County's motion was the passage of Resolution No. 111-1983 by the County Legislature on February 17, 1983, in which the Legislature declared that the County would not adopt or implement a local radiological emergency plan for response to any accident at the Shoreham facility. The

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[1] It seems apparent that the motion Suffolk County filed is analogous to a motion for summary disposition. See 10 CFR § 2.749.

QUESTION 8.
Attachment A

Licensing Board's order followed a series of filings before the Board in which Suffolk County, the Shoreham Opponents Coalition, the North Shore Committee Against Nuclear and Thermal Pollution, the Town of Southampton, the New York State Attorney General, the Chairman of the New York State Disaster Preparedness Commission, applicant Long Island Lighting Company (LILCO), and the NRC staff discussed whether the County's determination requires, as a matter of law, that the licensing proceeding be terminated.

In a companion order to its decision on the merits of the County's termination motion, pursuant to 10 CFR §§ 2.780(f) and 2.785(b)(1), the Licensing Board referred its ruling to the Atomic Safety and Licensing Appeal Panel for interlocutory review. Long Island Lighting Co. (Shoreham Nuclear Power Station, Unit 1), LBP-83-21, 17 NRC ____ (Apr. 20, 1983). Subsequently, by order dated April 26, 1983, the Appeal Board referred the Licensing Board's order to the Commission for its consideration.

After a careful review of the filings before the Licensing Board and the Board's order, the Commission has determined to exercise its discretion and accept the referral in this instance.[2]

With regard to the merits of the issues discussed in the Licensing Board's order, the Commission finds that sections IIA and IIB of the

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[2] Because the legal issues involved in the County's motion have been fully aired, the Commission believes it would not be a useful expenditure of the parties' time and resources to brief those questions further and, accordingly, is not requesting any additional submissions.

Board's decision correctly analyze the question of whether the agency can consider a utility offsite emergency plan under its regulations, 10 CFR § 50.47(c)(1), and the statutory authority afforded by section 5 of NRC's Fiscal Year 1982-83 Authorization Act, Pub. L. No. 97-415, 96 Stat. 2067 (1983).[3] Indeed, as we read the applicable regulations, we are not only authorized but also obligated to at least consider any proferred utility offsite emergency plan. Further, while there may well be serious issues of federal preemption involved in the current offsite emergency planning controversy, we find it unnecessary to reach such issues at this time because, as we read the applicable regulatory provisions, the agency is obligated to consider a utility plan submitted in the absence of State and local government-approved plans and has the ultimate authority to determine whether such a submission is sufficient to meet the prerequisites for the issuance of an operating license.

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[3] The Appeal Board's April 26 order notes that in its response to Question 7 from the Subcommittee on Nuclear Regulation of the Senate Committee on Environment and Public Works, which was submitted to the Subcommittee on April 14 and placed in the public record at a hearing on April 15, the Commission indicated that under NRC regulations and the NRC's Fiscal Year 1982-83 Authorization Act the agency could consider a utility offsite emergency plan. This Commission response was based on its independent assessment of the legal issues presented by the Committee's question. While the Licensing Board was not aware of this response, _see_ Licensing Board Memorandum Serving Excerpts from Commission Testimony Before Congress, at 2 (Apr. 26, 1983), as is indicated here[illegible] the Licensing Board analysis of the issue is consistent with [illegible] of the Commission. Moreover, in connection with this referral, the Commission, after careful consideration of the parties' filings and the Licensing Board's decision, has reviewed its previous response to the Subcommittee and has concluded that the response is a correct statement of the agency's legal authority.

Accordingly, we express no opinion concerning the validity of the Board's reasoning expressed in section IIC of its opinion.

It is apparent that the utility's submission of a plan for agency consideration under 10 CFR § 50.47(c)(1) is but the first step in resolving the emergency planning controversy now before the Licensing Board. We intend for that plan to be examined by the Federal Emergency Management Agency, the NRC staff, and ultimately the Licensing Board in the pending Shoreham adjudication in which the licensee will bear the burden of showing that its plan can meet all applicable regulatory standards. We express no opinion at this juncture whether it will be possible for the utility to meet this burden; there is no evidentiary record before us upon which to provide any such opinion. That record should be compiled, in the first instance, by the Licensing Board, subject to later appellate review by the Atomic Safety and Licensing Appeal Panel and the Commission.

Thus, having determined correctly its authority to consider a

QUESTION 8.
Attachment A

utility offsite emergency plan, the Board should now proceed as it outlined in section III of its opinion.[4]

Commissioner Gilinsky abstains from this decision. His separate views are attached.

It is so ORDERED.[5]

UNITED STATES NUCLEAR REGULATORY COMMISSION

For the Commission

SAMUEL J. CHILK
Secretary of the Commission

Dated at Washington, DC,
this 12th day of May, 1983.

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[4] As part of its referral order, the Licensing Board also certified to the Commission, through the Appeal Board, the question of whether it would be appropriate in this instance to issue a low-power operating license for the Shoreham facility. In its April 26 order, the Appeal Board indicated that it was passing this question on to the Commission. The Commission has not decided yet whether to accept the certified question.

[5] Commissioner Gilinsky was not present when this Order was approved but had previously indicated that he would abstain.

QUESTION 8.
Attachment A

5/10/83

COMMISSIONER GILINSKY'S SEPARATE VIEWS
(SHOREHAM OFFSITE EMERGENCY PREPAREDNESS)

I have abstained, not because I disagree with the Licensing Board's legal conclusion -- that the Commission can consider the utility's plan even in the absence of any state or local government participation -- but because the Commission has failed to deal with the actual issue in this case. That is: Can there be adequate emergency preparedness (as distinct from planning) if neither the State nor the County Governments will participate?

The answer is clearly, No. There cannot be adequate emergency preparedness for the surrounding population without the participation of a responsible government entity. And, however they may qualify their views now, I do not believe that a single Commissioner would actually approve the operation of the plant without such participation. Unfortunately, the Commissioners appear to think that holding out the possibility that they will approve the utility's plan will encourage the parties to this case to settle their disputes. The opposite is true. Whatever the chances of settlement might be, they would be enhanced, rather than diminished, if the parties knew where the Commission actually stands on this ultimate question.

QUESTION 9. If the NRC submits a utility plan to FEMA, and FEMA determines that it is not workable, feasible, or adequate, does the NRC still have the authority to license a nuclear power plant based on its own determination of the adequacy of that utility plan?

ANSWER.

Section 5 of the 1982/83 Authorization Act confirms the NRC's authority to issue a license in the absence of a FEMA-approved plan but only if the NRC can make the finding that the utility plan provides reasonable assurance that public health and safety would not be endangered by operation of the plant. However, FEMA is the agency at the Federal level which has the expertise to assess the adequacy of offsite emergency preparedness. Furthermore, the Commission believes that it is extremely difficult in most cases to supplant FEMA in the offsite emergency planning review process. NRC licensing actions taken absent a positive FEMA finding create an appearance that the NRC is more interested in meeting licensing schedules than public safety. Additionally, FEMA should work with State and local authorities to correct deficiencies when they are identified. The NRC should not be put in the position of second guessing FEMA when positive emergency planning findings are not forthcoming. NRC does not have the resources necessary to independently handle offsite emergency planning matters. Although the NRC has the authority

QUESTION 9.

to make an ultimate reasonable assurance finding, the NRC relies heavily on FEMA's input for off-site emergency preparedness. Therefore, with a FEMA determination that the plan is not workable, feasible, or adequate the NRC would face very practical difficulties in finding a rational basis to approve a utility offsite emergency plan. It should be added however, that with regard to both operating and new plants, the licensee or applicant is entitled to contest an unfavorable FEMA finding before the agency in an effort to establish the sufficiencies of its plan.

QUESTION 10. Does the NRC have the expertise, capacity, or resources to review and determine the adequacy of offsite emergency preparedness plans? Has the NRC ever before conducted such a review or made such a determination? To what extent would licensing delays occur--because of inefficiencies, lack of experience, or lack of resources--if the responsibility for reviewing and assessing offsite emergency preparedness plans were transferred from FEMA to the NRC?

ANSWER.

The NRC does not have FEMA's expertise, capacity or resources to review and determine the adequacy of offsite emergency preparedness. Prior to the President's directive of December 7, 1979, assigning FEMA lead responsibility for offsite emergency preparedness matters around nuclear power facilities, the NRC was involved in offsite emergency planning. Guidance criteria issued in the early 1970s required some licensee coordination with offsite agencies. Efforts by State and local governments to develop emergency plans were strictly voluntary. The NRC (AEC) reviewed and concurred in State radiological emergency response plans along with other Federal agencies. For the NRC to assume the role currently being conducted by FEMA would require a period of time to establish the proper staffing levels and resources and would negate the substantive advancements made by FEMA in

QUESTION 10.

upgrading their level of expertise. It is difficult to quantify the extent of licensing delays, if any, that would occur if responsibility and resources for reviewing and determining the adequacy of offsite emergency preparedness were transferred from FEMA to the NRC.

QUESTION 11. Does the Commission recommend that the responsibility for reviewing and assessing offsite emergency preparedness plans be transferred from FEMA to the NRC? Please explain and analyze the implications of such a recommendation.

ANSWER.

No. For the reasons set forth in its answer to Question 10, the Commission does not recommend that the responsibility for reviewing and assessing offsite emergency preparedness plans be transferred from FEMA to the NRC.

SENATOR MOYNIHAN'S QUESTIONS.

QUESTION 12. Would you provide a summary of the status of the proceedings being conducted by the Special Atomic Safety and Licensing Board concerning the Indian Point nuclear reactors?

ANSWERS.

The Indian Point Special Investigative Proceeding concluded a total 60 days of hearings by closing the record on April 29, 1983, after a 4-day session to receive evidence on the emergency exercise conducted at Indian Point on March 9, 1983. Parties have been directed to submit proposed recommended findings to the Board by June 27, 1983, and the Board expects to issue its findings and recommendations to the Commission on August 29, 1983.

QUESTION 13. What is the status of the proceedings on the operating license for the Shoreham nuclear powerplant? How is the Commission going to deal with the issue of off-site emergency preparedness planning for Shoreham in light of Suffolk County's position that no effective off-site emergency plan can be prepared?

ANSWER.

On April 20, 1982 the Atomic Safety and Licensing Board issued its Memorandum and Order addressing the future of the Shoreham proceeding with respect to offsite emergency planning. As discussed in the answer to question 7 above, this Order states that the NRC has the authority to review the adequacy of a LILCO-submitted offsite emergency plan for Shoreham. LILCO has indicated that it will submit this plan to the NRC Staff in May, 1983. Upon the receipt of this plan, the NRC Staff will transmit it to FEMA for its review. The Board Order establishes that Intervenors shall file draft emergency planning contentions directed to alleged deficiencies in the LILCO plan by four weeks from the date of receipt of LILCO's plan. Two weeks later the final proposed contentions, and the LILCO and NRC Staff responses to their admissibility, are due to be received by the Board. A prehearing conference will be scheduled for shortly after that date. At the conference a litigation schedule for admitted offsite emergency planning contentions will be established. In

QUESTION 13.

its May 12, 1983 Order, the Commission indicated its agreement with this schedule established by the Licensing Board.

PREPARED STATEMENT OF RICHARD W. KRIMM, ASSISTANT ASSOCIATE DIRECTOR, FEDERAL EMERGENCY MANAGEMENT AGENCY

Mr. Chairman, I am pleased to appear before this Subcommittee on behalf of Louis O. Giuffrida, Director of the Federal Emergency Management Agency, to discuss radiological emergency preparedness (REP) around nuclear facilities.

FEMA'S ROLE IN RADIOLOGICAL EMERGENCY PREPAREDNESS

The objective of FEMA's REP program is to enhance Federal, State and local capabilities to plan for, and respond to, radiological emergencies at commercial nuclear power plants, nuclear fuel cycle and material license holders activities, Departments of Defense and Energy nuclear facilities and transportation accidents involving radioactive materials. My remarks will deal mainly with FEMA's activities related to commercial nuclear power plants.

The REP program has a twofold emphasis, one deals with Federal assistance to State and local governments; and the other with Federal response planning and preparedness. FEMA Headquarters responsibility for dealing with the State and local aspects of the program is assigned to the Technological Hazards Division, Office of Natural and Technological Hazards. Responsibility for dealing with Federal response planning and preparedness is assigned to the recently established Office of Emergency Operations. The critical link between FEMA's REP program and the affected State and local governments is provided through FEMA's ten Regional offices. Close coordination is maintained between Headquarters offices and FEMA's Regions.

The Technological Hazards Division now has 21 professionals and two clerical persons assigned to handle its REP program function. This represents an increase of 12 professionals since July 1981. The amount of effort in the FEMA Regions has increased from around 44 persons per month in July 1981, when we started reporting to the Subcommittee, to an average of about 50 persons per month today. The Regional effort has been accomplished largely by using personnel assigned to other functions. This situation is now being improved with the approval by the Congress of funds to hire 30 additional people for the REP program, 27 of whom have been allocated to the Regions. The Office of Emergency Operations has 7 people assigned to the Federal planning and preparedness function. We estimate that the FEMA Regional offices devote about 5 persons per month to this function. In summary, the personnel resources that have been made available, along with adequate budgetary support, should be sufficient for the task ahead.

COORDINATION OF FEDERAL REP ASSISTANCE TO STATE AND LOCAL GOVERNMENTS

In March of 1982, FEMA published its final regulation, 44 CFR 351, dealing with the coordination of the REP program. This regulation assigns Federal agency responsibilities for assisting State and local governments in emergency planning and preparedness. These assignments reflect activities that are common to all participating agencies and those that relate to each agency's authorities and mission. The common responsibilities are: the development of planning and preparedness guidance, review and evaluation of State and local plans and preparedness, evaluation of exercises, development and presentation of training courses, and furnishing representation and support to the Federal Radiological Preparedness Coordinating Committee in Washington and the Regional Assistance Committee located in each of the ten standard Federal Regions. The Federal organizations involved with FEMA in these committees are the Departments of Commerce, Defense, Energy, Health and Human Services, Transportation, Agriculture, the Environmental Protection Agency and the Nuclear Regulatory Commission.

FEMA'S PROCESS FOR EVALUATING OFFSITE EMERGENCY PREPAREDNESS

In June 1980, FEMA adopted a formal process for evaluation of offsite emergency plans and preparedness and published it in a proposed rule, 44 CFR 350. This proposed rule was revised in August 1982 and we expect to publish it in final form this summer. Meanwhile, we have followed the procedures outlined in the proposed rule in accordance with our announced intentions. This process includes a formal submission by the Governor, or his designee, of the State and local plans for the area around a specific nuclear power plant. The FEMA Regional office (with responsibility for the submitting State) reviews the plans, assures that a joint exercise with the utility is conducted to test the plans, and holds a public meeting to inform interested members of the contents of the plans and what would be expected of the public in an emergency at the plant. Notice of the public meeting is made twice in the newspaper of largest circulation in the area--one at least two weeks and another within a few days of the meeting. The results of these actions, which are done with the help of a Regional Assistance Committee, are included in an evaluation report which is sent to FEMA Headquarters.

A further review of the plans and preparedness contained in the evaluation report is done in the FEMA Headquarters and by the other agencies on the Federal Radiological Preparedness Coordinating Committee. The plans are approved if a determination is made that they are adequate to protect the health and safety of the people living in the vicinity of the nuclear power plant and provide reasonable assurance that appropriate protective measures can and will be taken offsite in the event of a radiological emergency at the plant. Approval is granted by the FEMA Associate Director for State and Local Programs and Support. The process does not end here: The State and the affected local jurisdictions must participate in an acceptable exercise with the utility each year as a condition of continued FEMA approval.

The planning and preparedness reviews performed by FEMA are based on the joint NRC-FEMA guidance document titled "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," known as NUREG 0654 FEMA-REP-1. This same document is the major source of guidance to State and local governments in developing their plans and preparedness capabilities. The document has 16 major planning standards. These same standards are included in the FEMA rule 44 CFR 350. There are 212 evaluation criteria which are subordinated to these standards. One hundred and sixty-nine (169) of the criteria are applicable to State governments and 96 are applicable to local governments. The standards cover such functions as assignment of responsibilities among response organizations, emergency classification systems, notification procedures, emergency communications, public education and information, accident assessment, protective response such as evacuation and sheltering, exercises and drills, medical and public health support.

FEMA SUPPORT OF NRC LICENSING PROCESS

Much of what FEMA does in its formal evaluation process is in support of the NRC licensing process. However, licensing activities, such as Atomic Safety and Licensing Board (ASLB) hearings, frequently require evaluations of offsite preparedness out of phase with the formal process. To meet these requirements, FEMA provides interim evaluations or findings, when requested by NRC, under the terms of a November 1980 Memorandum of Understanding (MOU). FEMA also furnishes witnesses, in support of the NRC staff who testify at ASLB hearings, on the status of offsite emergency preparedness. These interim findings and hearings have absorbed much of our effort in the REP program and have slowed down the formal 44 CFR 350 approval process.

DIMENSIONS OF THE JOB
FEMA ACCOMPLISHMENTS

The REP program related to commercial nuclear power plants is a large task. There are 87 nuclear power plant sites that require offsite plans. Of these, 53 are operating, 30 are under construction and 4 are planned. There are a total of 541 State and local jurisdictional plans involved with this effort.

Any discussion of FEMA accomplishments in carrying out its responsibilities in the REP area should be prefaced with a recognition of the excellent work that is done by most of the State and local governments in areas where there are nuclear power plants. We basically react to what they do, with the following results. In relation to the operating sites, 16 have a FEMA approval under the 350 process. These approvals include 18 State site specific and 51 local plans. Plans are under review for the remaining 37 operating sites involving 64 State site specific and 186 local plans. For the sites under construction, 12 sites have 13 State site specific plans and 29 local plans under review. The 100 State and local plans for the remaining 18 sites under construction, as well as the 19 State and local plans for the 4 sites that are planned, remain to be prepared and submitted to FEMA. In addition, 61 State ingestion zone plans are under development and/or review. All 53 operating sites have had an initial joint exercise, 32 have had a second exercise, and 5 have had a third exercise. Initial joint exercises have also been held for 3 sites under construction. Most sites will have exercised for the third time by the end of Fiscal Year 1983. FEMA has participated in 13 ASLB hearings, and we have furnished NRC 76 interim findings under the Memorandum of Understanding. Both the hearings and preparation of interim findings are time consuming, and where negative findings are involved, additional effort must be expended working with the State to correct the deficiencies.

Projections of what we hope to accomplish in the REP program related to commercial nuclear power plants through Fiscal Year 1988 show approximately 75 percent of the reviews and evaluations under 44 CFR 350 completed by the end of Fiscal Year 1984. Except for assuring that plans and preparedness are tested in periodic exercises and that plans are appropriately up-dated, the job will be essentially completed by Fiscal Year 1988.

AREAS OF SPECIAL ATTENTION

As we have gained experience with the program, areas requiring special attention have emerged. Among the more important of these are alert and notification, the effectiveness of joint exercises and frequency of exercises.

The alert and notification systems are intended to warn people living within the 10 mile planning zone of a nuclear power plant and instruct them what to do in the event of a radiological emergency. By agreement with NRC, FEMA is responsible for reviewing and evaluating these systems. They generally consist of sirens or other alerting devices, furnished by the utility, to alert the public, and Emergency Broadcast System stations to transmit the instruction message. It has been a difficult and time consuming problem to develop an acceptable method for testing whether the system at a given location will achieve its objective of alerting and instructing the public. We have developed performance standards which will be pilot tested at three locations between now and September 1983. Operational testing will commence starting in October 1983. We shall advise the Subcommittee of the results of these tests.

Effective joint utility, State and local exercises are critical to adequate emergency preparedness around nuclear power plants. All parties concerned recognize the need for improvement of these exercises. FEMA is doing a number of things to make them more effective. We are reviewing the method of critiquing. We are standardizing the procedures for observing and reporting on the exercises. We have taken steps to ensure that the exercise objectives and scenarios are consistent and include elements to adequately test the plans of offsite organizations.

In addition, FEMA is developing an Exercise Evaluation and Simulation Facility (EESF), to provide improvement in the technological support of exercises. This technology should permit better integration of the mutually dependent Federal, State, and local direction and control functions, and a more standard and meaningful way to evaluate periodic exercises at all levels. EESF will combine computerized evaluation of exercise elements and performance with analytical assessment of radiological releases to air, simulation of evacuation dynamics, and estimation of dose to population. These capabilities could be used to assist State and local governments to develop better plans and exercise scenarios; to improve assessment techniques; and to standardize the execution and evaluation of exercises. For example, a common problem faced by emergency managers is evacuation versus sheltering. This system would permit rapid assessment of the consequences of either alternative.

EESF is currently being developed and tested, and will be operational in early FY 1984. It will be operated in conjunction with the FEMA Emergency Information Coordinating Center, and will be used by the Agency to improve exercising and response capabilities across the board.

The NRC and FEMA requirement for a joint exercise every year has proved to be a heavy burden on State and local governments and on Federal agencies that evaluate them. Now that there has been an exercise at all operating sites and a second exercise at more than 30 of them, it is appropriate to consider some relaxation of the annual requirement. The NRC and FEMA staff have agreed to an approach which would permit a State and local government to go to a once-every-two-year frequency in those cases where FEMA has determined that all appropriate elements of their plans were performed satisfactorily during the exercise and that offsite preparedness is adequate to protect the public in the event of an accident at the nuclear facility. The Commission and FEMA management will be considering this proposal in the near future.

OTHER REP ACTIVITIES

In addition to our heavy involvement in REP activity around commercial nuclear power plants, FEMA is making progress in carrying out its responsibilities in other REP areas. We are working with NRC to have emergency planning zones identified for nuclear fuel cycle facilities and nuclear material licensees. This will be followed by the preparation of a joint planning guidance document for State and local governments, which is scheduled to be published in 1984. Later this year we expect to publish a joint document with the Department of of Defense designed to assist State and local goverments in developing plans for responding to accidents involving radioactive materials at nuclear weapons storage and operational locations. In 1984, a similar guidance document will be published that will be related to Department of Defense non-weapon nuclear facilities and Department of Energy fixed nuclear facilities. Both these guidance documents will be patterned after the one used for commercial nuclear power plants, NUREG-0654 FEMA-REP-1.

Later this month we will be distributing, for interim use and comment, approximately 11,000 copies of a planning guidance document related to transportation accidents involving radioactive materials for State and local governments. This is the culmination of about two years effort by a Federal interagency committee. Based on comments received and experience in using it, the document will be published in final form in early 1984.

FEDERAL RESPONSE

Finally, I wish to comment on the significant progress FEMA and other Federal agencies have made in preparing for an expeditious, effective Federal response to radiological accidents. The impetus for this activity was section 304 of the Nuclear Regulatory Commission Appropriation Authorization Act (PL 96-295, June 30, 1980). That section required the President to prepare and publish a National Contingency Plan for a Federal response to an accident at a nuclear power plant. The President delegated this responsiblity to the Director of FEMA in Executive Order 12241, dated September 29, 1980. The first significant step in complying with this legislative mandate and Executive Order assignment to FEMA, was the publication of on December 23, 1980, of the so-called "Master Plan". Its full title is "National Radiological Emergency Preparedness/Response plan for Commercial Nuclear Power Plant Accidents (Master Plan)."

Since late 1981, a Subcommittee on Federal Response of the Federal Radiological Prepardness Coordinating Committee, has been working hard to expand and improve the Master Plan. The product of this effort will be the Federal Radiological Emergency Response Plan (FRERP). It will be applicable to the same categories of radiological accidents that are emphasized in Federal assistance to State and local governments discussed earlier. Draft expanded guidance to Federal agencies was used as a basis for a Washington level exercise in October 1982. The final guidance will be published later this month. The Federal agencies that would háve a significant role in a Federal response will follow this guidance in preparing agency plans. A summary of these, along with essential features of the guidance, will constitute the FRERP. A full text of the agency plans will be an annex to the FRERP. The document is scheduled to be published for interim use in December 1983. A field exercise of the plan, including participation by a utility, State and local governments, is scheduled for early 1984. Final publication of the FRERP, modified to take into account the lessons learned in the exercise, is targeted for mid 1984. The Master Plan will continue to serve as the basis for a Federal response until the FRERP is published for interim use in December of this year.

That completes my prepared statement. I will be pleased to answer any questions from the Subcommittee.

Federal Emergency Management Agency
Washington, D.C. 20472

June 10, 1983

Honorable Alan K. Simpson
Chairman, Subcommittee on Nuclear Regulation
Committee on Environment and Public Works
United States Senate
Washington, D.C. 20510

Dear Senator Simpson:

This is in response to your letter of April 21, 1983, forwarding questions from Senators Hart, Moynihan, and yourself relative to the Subcommittee's oversight of emergency preparedness at commercial nuclear power plants. Our answers will correspond to the order in which they were submitted by each Senator, with each question being restated and followed by our response. In addition, the response to item eight of the Subcommittee's April 5, 1983, letter requesting the Federal Emergency Management Agency's (FEMA) participation at the April 15, 1983, hearing is attached. At the hearing, FEMA committed to supplying this information to the Subcommittee.

Responses to Questions Submitted by Senator Simpson

1. What authority does FEMA have to (i) review; (ii) render an interim finding of adequacy on; and (iii) render a final "350 finding" on (In answering each of these questions please distinguish between statutory and regulatory authority):

   a. A plan submitted to FEMA by the Governor of a State?

RESPONSE:

FEMA could review, render an interim finding or a 350 finding based on 44 CFR 350, 10 CFR 50 or the Nuclear Regulatory Commission (NRC)-FEMA Memorandum of Understanding (MOU) of November 1980.

   b. A plan submitted to FEMA by a local government?

RESPONSE:

There are no provisions in 44 CFR 350 for submission of local plans directly to FEMA for review, interim, or final findings (such plans must be submitted by the State). The NRC could submit a local plan to FEMA under the terms of the MOU, in which case FEMA would issue an interim finding if requested to do so by NRC.

   c. A plan submitted to FEMA by a utility?

RESPONSE:

There are no current provisions in 44 CFR 350 or other agency procedures for review of a plan submitted to FEMA directly by a utility.

d. A plan forwarded to FEMA by NRC that has been prepared and submitted to the NRC by a utility?

RESPONSE:

The MOU permits the NRC to submit to FEMA for review and an interim finding, State and local plans submitted to the NRC from a utility. FEMA has not provided for this source and routing of State and local plans in 44 CFR 350. We believe a fully effective state of preparedness is best assured by the Governor or his designee being designated as responsible for putting together the plans related to a particular nuclear power plant and for submitting them to FEMA, together with a statement of opinion as to whether the plans are adequate to protect the health and safety of the people who live within the emergency planning zone of the power plant.

e. A plan forwarded to FEMA by NRC that has been prepared and submitted to the NRC by a local government?

RESPONSE:

Our review here could well depend on the circumstances. For instance, if the local plan was the last missing piece of an otherwise comprehensive area plan involving the State and all other affected local governments, FEMA may well be able to render a final 350 finding, given preceeding consideration of the other planning documents. On the other hand, if the local plan was not part of a comprehensive state plan, but was submitted independent of the state by the local government to NRC and forwarded on to FEMA under the MOU, we would review and issue an interim finding, but not a final 350 finding, as mentioned in the response to 1.d. We believe more effective preparedness will result if the Governor or his designee accepts responsibility for the activity.

f. A plan forwarded to FEMA by the NRC that has been prepared and submitted to the NRC by the Governor of a State?

RESPONSE:

FEMA would normally limit its action to a review and an interim finding under the terms of the MOU. A final finding under the terms of 44 CFR 350 could be rendered only if the Governor or his representative submitted the State plan specific to the nuclear facility site in question together with the appropriate local plans as required by 44 CFR 350.7 and full exercises of the plans are conducted.

2. Under the current emergency planning framework, FEMA's finding on the adequacy of off-site emergency preparedness is an issue that is open to litigation in the NRC proceedings. Since the NRC essentially allows FEMA's findings to be contested in its proceedings, might not it make more sense for FEMA to serve in an advisory capacity, rather than requiring FEMA to make a separate finding on the adequacy of off-site preparedness?

RESPONSE:

We believe that the current arrangement essentially places FEMA in an advisory role to the NRC. In making a decision to license a nuclear power plant, NRC makes a finding on whether the "on-site and off-site emergency preparedness provides reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency" (10 CFR 350.47(a)(1)). Among other things, the NRC bases this finding "on a review of FEMA findings and determinations as to whether State and local emergency plans are adequate and capable of being implemented . . . ." Similarly, FEMA's role in Atomic Safety and Licensing Board hearings is advisory, a fact reflected in Section 5 of the NRC Appropriations Authorization Act for 1982-83, which authorizes NRC to license a nuclear power plant in the absence of a FEMA approved State or local emergency preparedness plan. This terminology is found in the 1980 NRC Authorization Act enacted by the Congress.

3. There has been a significant amount of discussion concerning the feasibility of preparing and implementing emergency plans for plants located in high population areas. It is my understanding that the emergency plan for the Zion plant near Chicago, Illinois has now been exercised on a number of separate occasions, and that these exercises have been observed and evaluated by FEMA. As you know, the Zion plant is one of the two most highly populated power plant sites in the country. What were the results of your most recent review of the emergency plan exercise at the Zion plant?

RESPONSE:

The results of the most recent review of the emergency preparedness exercise at the Zion Nuclear Power Station conducted on January 18, 1983, are that both Lake County, Illinois, and Kenosha County, Wisconsin, adequately demonstrated a capability to protect the population. The States of Illinois and Wisconsin during this exercise were small-scale and participated in the exercise in a support role providing necessary support to Lake County, Illinois, and Kenosha County, Wisconsin, in order for them to demonstrate their capabilities.

This evaluation is based on evaluation findings of 19 Federal evaluators utilizing exercise evaluation forms based upon NUREG-0654/FEMA-REP-1, Revision 1.

The deficiencies observed during the exercise do not detract from the overall findings of adequacy. These deficiencies identified in the Final Exercise Report have been sent to both States for their review and action. It should be noted that both States, upon receipt of this information, take corrective action and demonstrate their improved capability during the next annual exercise.

4. Under FEMA's current process for review and approval of emergency plans, would FEMA be required to find that the state of off-site preparedness is inadequate if a local government decided not to implement the plan, or are there circumstances under which a utility plan, or a plan implemented by some other entity, could compensate for this lack of a local emergency plan?

RESPONSE:

FEMA's policy and practice is to look to the Governor or his/her designee to ensure that plans and preparedness for a given nuclear power plant site include both the State site-specific plan and appropriate local government plans. If a local government decided not to prepare a plan or implement a plan prepared for it by an outside organization, the State may prepare and/or implement a local plan in a manner to provide assurances that the health and safety of the public in the affected local jurisdiction could be protected in the event of an accident at the nuclear power plant.

A utility plan prepared for a local jurisdiction could provide for adequate offsite preparedness so long as there was a commitment by the affected local government or State to implement the plan. It is also conceivable that a utility or some other local political jurisdiction could implement a plan prepared for a local government within the 10-mile emergency planning zones and thus compensate for the absence of the affected local government plan or commitment to carry out the compensating plans.

Responses to Questions Submitted by Senator Hart

1. NUREG-1856 gives estimates of evacuation times within a 10-mile radius around each operating nuclear power plant. For normal conditions, the times range from 0.9 hours at the Yankee Rowe plant to 14 hours at the Zion plant. For adverse conditions, the times run as high as 10 to 20 hours for a number of sites.

    a. For either normal or adverse weather conditions, does the FEMA have any regulation, criterion, or guideline that establishes what constitutes an acceptable evacuation time?

RESPONSE:

FEMA has no regulation, criterion, or guideline that establishes what constitutes an acceptable evacuation time. FEMA sponsored the contracts which provided the basis for the methodology guidance in Appendix 4 of NUREG-0654/FEMA-REP-1, Rev. 1, which is used to guide the preparation of response plans and make judgments on preparedness.

b. If not, does this mean that the FEMA has determined that every site, even under the worst of conditions, is evacuable? Are some sites evacuable and others not? Please list and discuss those sites that pose the most difficulty for evacuation, particularly under adverse conditions.

RESPONSE:

Appendix 4 of NUREG-0654/FEMA-REP-1, Rev. 1, sets minimum guidelines for the development of evacuation plans and the presentation of data for regulatory purposes. Given the combination of a competent evacuation analyst and a cooperative State and local government, the guidelines are designed to reveal conditions which might require special regulatory consideration. In our review of evacuation preparedness where both conditions have been satisfied, we have been presented with no sites which are deemed non-evacuable under the planning assumptions underlying the guidelines of NUREG-0654/FEMA-REP-1, Rev. 1. FEMA and NRC have no joint criteria which constitute the basis for describing the worst of conditions, because by previous agreement, preparedness judgments are not made against worst case conditions. From a purely technical point of view, it is possible to select hypothetical assumptions that would make many sites difficult and some perhaps impossible to evacuate.

At this time, FEMA has not developed a formal list of sites which might be deemed difficult on the basis of analytical testing of underlying assumptions. To do so would involve a process of computer analysis of State and local plans, and tests of the sensitivity of the results to the underlying assumptions. During 1980, FEMA contracted with 3 contractors to perform evacuation time dynamics of 12 sites selected by the NRC, of which at least 11 were among the most populated sites. The results of those studies are summarized in a FEMA document "FEMA-REP-3; Dynamic Evacuation Analyses: Independent Assessments of Evacuation Times from the Plume Exposure Pathway Emergency Planning Zones of Twelve Nuclear Power Stations, November 1980." The report concludes that evacuation times are highly sensitive to the assumptions used by contractors with respect to physical conditions and local government policies.

FEMA is in the process of acquiring the appropriate technology to perform computerized evacuation simulations. The Agency plan is to involve State and local governments in joint analyses of evacuation time dynamics in order to evaluate the extant differences in assumptions, and to improve the evacuation planning on a continuing basis.

Further, FEMA will make its evacuation analysis technology available to State and local governments on the same library basis as the Federal Highway Administration.

c. NUREG-0654 states, "The range of times between the onset of accident conditions and the start of a major release is on the order of one-half hour to several hours. The subsequent time period over which radioactive material may be expected to be released is on the order of one-half hour to a few days." Given these facts, why has the FEMA not established a set evacuation time, or at least guidance for what constitutes an acceptable evacuation time?

RESPONSE:

FEMA and NRC are both parties to NUREG-0654/FEMA-REP-1, Rev. 1. The setting of an arbitrary evacuation time must be balanced against the technical probabilities of a range of accidents and a wide range of concurrent environmental conditions. FEMA looks to the NRC for technical guidance on the nature of accidents to plan for. The existing basis for plans and preparedness is NUREG-0396 "Planning Basis for the Development of State and Local Government Radiological Emergency Response Plans in Support of Light Water Nuclear Power Plants" issued jointly with the Environmental Protection Agency. Both NRC and FEMA have agreed to the use of NUREG-0396 as the basis for the setting of Emergency Planning Zones, and as a guide to the nature of the accident to plan for.

Further, each site is a unique entity, with a unique environment and requires individual consideration. In a real event it is unlikely that a complete radial evacuation out to 10 miles would be ordered any more than it is likely that a relatively severe accident might occur. Therefore, the concern over the combination of low priority events appears to divert attention from the important gains which all participants can make by continued examination and improvement of planning on a site-by-site basis. In the end, a policy decision on evacuation will be based on minimizing potential radiation exposure to the public by a combination of sheltering and evacuation options which are not easily translated to a single number.

2. Please discuss the FEMA's authority in the emergency preparedness area. Does FEMA have any authority to enforce its guidelines? If not, who does?

RESPONSE:

FEMA's authority for its REP program is based on statutes, an executive order, a Presidential assignment, and a regulation.

There are three statutes which provide authority for FEMA's REP program and they include the Federal Civil Defense Act of 1950, as amended; the Disaster Relief Act of 1974, as amended; and the NRC FY 82/83 Appropriation Authorization.

Federal Civil Defense Act of 1950. The term "civil defense" as used in this Act, as a result of the 1980 and 1981 amendments, is redefined to encompass a range of disasters broad enough to include an incident at a nuclear power plant. Also, in Section 502(b)(8) of this Act, specific authorization is made for FEMA to work with the State and local governments to assist them in "the development of emergency evacuation plans for areas in which nuclear power plants are located." Finally, under the new definition of civil defense, provisions of the Act can be applied to a wide range of activities related to FEMA's REP program including: establishment of appropriate State and local government organizations, development of emergency response plans, review and evaluation of plans, exercise of plans and evaluation procedures, training of personnel, warning, evacuation and other such emergency management functions.

Disaster Relief Act of 1974. Section 201 establishes the scope of this Act to include any type of disaster or emergency. The scope is defined in such a way that preparedness planning for nuclear power plant incidents could be included under the Act. Also, by this authority, the President is authorized in Section 201(a)(1, 2, and 5) to establish a program of disaster preparedness that utilizes services of all appropriate Federal agencies for the preparation of disaster plans for mitigation, warning, emergency operations, rehabilitation and recovery, as well as to establish and maintain training and exercise programs. Explicit authority is given FEMA to coordinate Federal, State, and local preparedness programs associated with these activities and functions identified above.

NRC FY 1980 Appropriation Authorization Act. Section 109 of this Authorization Act specifies the role of FEMA as to determinations of the adequacy of offsite emergency preparedness around nuclear power plants.

Executive Order 12148 (July 20, 1979) provides authority to the Director of FEMA to establish Federal policies for and coordination of all civil defense and civil emergency planning, management, mitigation and assistance functions of Executive agencies. The term "civil emergency" includes accidental "man-caused" emergencies such as nuclear power plant incidents.

On December 7, 1979, the President, in response to the recommendations of the President's Commission on the Accident at Three Mile Island (known as the Kemeny Commission), announced, in part, a series of decisions in the area of radiological emergency planning and preparedness. Among other assignments, the President directed FEMA to:

(1) Take the lead in offsite emergency planning and response;

(2) Develop and issue an updated series of interagency assignments which delineate respective agency capabilities and responsibilities and clearly define procedures for coordination and direction for both emergency planning and response. FEMA carried out this assignment through the publication of its regulation, 44 CFR 351, March 11, 1982.

(3) Address the need for improved advance preparation for emergencies and public education programs in the context of State emergency response plans.

The NRC's rule, 10 CFR Parts 50 (and Appendix E) and 70 (45 FR 55402, August 19, 1980), on "Emergency Planning" sets forth the NRC's policy and procedures on the relationship between emergency planning and preparedness by utilities, and State and local governments with licensing requirements for commercial nuclear power plants. The NRC delineates FEMA's role with respect to their licensing process in this rule. First, the NRC adopts the joint (NRC-FEMA) criteria (NUREG-0654/FEMA-REP-1, Rev. 1) for evaluating utility, State, and local government emergency planning and preparedness. Secondly, while not under a statutory mandate to do so, the NRC indicates it will base its findings on the adequacy of offsite preparedness on a review of the FEMA findings and determinations as to whether State and local government emergency plans are adequate and capable of being implemented.

Finally, the respective responsibilities of the NRC and FEMA under the joint (NRC-FEMA) Memorandum of Understanding (45 FR 82713, December 16, 1980) are delineated. FEMA has published a corollary proposed rule, 44 CFR 350, on two occassions (45 FR 42341 on June 24, 1980, and 47 FR 36386, August 19, 1982) to establish FEMA policy and procedures for the Agency's review and evaluation responsibilities for State and local government planning and preparedness.

FEMA does not have the authority to enforce its guidelines as this authority is vested in the NRC licensing responsibilities under the Atomic Energy Act and the Energy Reorganization Act.

As previously mentioned in the response to question 2. a., the NRC's rule, 10 CFR Part 50 (and Appendix E) and 70, bases findings on the adequacy of offsite preparedness of State and local governments on a review of FEMA's findings and determinations.

FEMA's review and evaluation program of State and local government plans and preparedness is derived from the NRC rule (10 CFR 50 Parts 50 and 70) and is reflected in the FEMA proposed rule, 44 CFR 350. Under this rule, FEMA does not require the submission of State and local government plans for our Agency's evaluation. Once the Governor submits these plans to FEMA, however, the State and local governments are expected to fully cooperate with the Agency in completing our review and evaluation activities.

3. In the past, when the FEMA has found problems with emergency preparedness for a specific nuclear power plant site, and has notified the NRC of those problems, how did the NRC respond? Did it correct, or require the licensee to correct, those problems?

RESPONSE:

It would be appropriate for the NRC to answer this question since FEMA can only provide generic information on the NRC response to problems with emergency preparedness that FEMA has reported to them. In many instances FEMA has already contacted the State and local officials concerning any deficiencies to encourage early action on corrections. Also, after receiving deficiency information on emergency preparedness, the NRC, where appropriate will prod the licensee or request that the licensee coordinate with the State or local government to rectify the problems. The utility may be requested to provide additional support or resources to State and local governments to correct planning or preparedness deficiencies. NRC also has the authority to fine a utility or to impose a deadline for correction of planning deficiencies by the utility in conjunction with the State and local governments. Failure by the utility to comply with such deadlines imposed by the NRC can result in a requirement to close down the nuclear power plant. The Subcommittee should seek further elaboration from the NRC.

4. Should the Congress give the FEMA some enforcement power to help the FEMA assure the adequacy of emergency response planning? If so, what kinds of power?

RESPONSE:

This question is being closely considered by FEMA and we have had communications with the NRC on possible approaches to legislative changes. At present, however, we believe FEMA's statutory and regulatory attachments are adequate to allow us to do our mission effectively.

As indicated in our answer to question 2, FEMA's program of reviewing and evaluating State and local government planning and preparedness is voluntary and has proved to be generally satisfactory. In cases where there have been problems, the enforcement authority of the NRC, through its licensees, has generally been adequate to assure that offsite preparedness deficiencies are addressed.

5. Does the NRC have the same competence, expertise, and resources as the FEMA to review and assess off-site emergency preparedness plans? How would the FEMA respond to a recommendation that the responsibility for reviewing and assessing off-site emergency preparedness plans be transferred to the NRC? Please analyze the implications of such a recommendation.

RESPONSE:

NRC has developed significant competence and expertise in the review and assessment of radiological emergency plans and preparedness over the past four years. They have also applied substantial resources to this activity. Since the main focus of NRC has been onsite preparedness while FEMA's main focus has been to establish offsite State and local preparedness capability, we do not believe that NRC is, overall, as well equipped, and experienced as FEMA to review and assess offsite activities.

6. Are there operating plants that have not received 1) an interim finding; or 2) a 350 approval? Please list the plants and explain why they have not received one or the other.

RESPONSE:

1) Interim findings or exercise reports have not been provided to the NRC for these operating reactors, but the existing plans have been exercised.

Millstone
Crystal River
Kewaunee
Yankee Rowe
Duane Arnold
Peach Bottom

Pilgrim
Turkey Point
Point Beach
Oyster Creek
Cooper Station

Interim findings or exercise reports have not been provided because:

1. The NRC has not requested an interim finding;
2. Exercise evaluation reports have been delayed from the FEMA Region and some have required additional work;
3. Corrective action schedules from States to remedy listed deficiencies have been slow in being furnished to FEMA's Regional office for evaluation; and
4. A lower priority has been placed on these compared to interim findings required for the Near Term Operating License facilities in conjunction with the Atomic Safety and Licensing Board hearings.

2) 44 CFR 350 approvals have not been rendered for the following operating sites:

Connecticut Yankee
Millstone
Pilgrim
Salem
Monticello
Ginna
Kewaunee
Peach Bottom
Ft. Calhoun
Browns Ferry
San Onofre
St. Lucie
Turkey Point
Quad Cities
Oyster Creek
LaCrosse
Indian Point
Davis Besse
Calvert Cliffs
Duane Arnold
TMI
Rancho Seco
Susquehanna
Grand Gulf
Yankee Rowe
Vt. Yankee
Fitzpatrick*
Prairie Island
Nine Mile Point
Point Beach
Beaver Valley
Cooper Station
Crystal River

*As part of the Nine Mile Point Exercise

350 approvals have not been provided on these operating reactors for the following reasons:

1. The State has not submitted a request for 350 approval;
2. The development of plans is not yet complete; and /or
3. The 350 submission is currently under review in FEMA's Regional and Headquarters' Offices.

7. When does the FEMA expect to have issued final 350 approvals for every nuclear power plant?

RESPONSE:

FEMA expects to have issued final 350 approvals for all nuclear power plants by the end of FY 1988, pending normal delays in State submittals, correction of deficient plans, completion of exercises, etc.

Responses to Questions Submitted by Senator Moynihan

1. Under what circumstances, if any, would FEMA consider reviewing an off-site emergency preparedness plan for a nuclear power reactor under construction that was not submitted and/or approved by the appropriate State and local government?

RESPONSE:

A key provision of a FEMA-NRC Memorandum of Understanding (45 FR 82713, December 16,1980) is an arrangement whereby NRC may request and FEMA will furnish "findings and determinations on the current status of emergency preparedness around particular sites--through the NRC/FEMA Steering Committee--for use as needed in the licensing process. These findings and determinations may be based upon plans currently available to FEMA or furnished FEMA by the NRC."

2. Does FEMA believe that an emergency preparedness plan that has not been prepared by, or approved by, the appropriate State and local governments could, under the circumstances, be considered capable of providing reasonable assurances that the public health and safety will not be endangered by the operation of the nuclear reactor concerned?

RESPONSE:

FEMA believes that a plan prepared by an organization other than the applicable State and local government could provide the basis for providing reasonable assurances that the public health and safety would be protected in the event of a serious accident at a nuclear power plant, provided the State or local government(s) involved make an adequate commitment of resources to implement the plan. If they have made no such commitment, any other compensating measures offered by the utility, for example, would have to be sufficient to assure that public health and safety were protected absent an operational resource commitment by the jurisdictions.

Please feel free to contact me should you have any further questions.

Sincerely,

Jeffrey S. Bragg

Jeffrey S. Bragg
Executive Deputy Director

Enclosures

Summary of Federal Emergency Management Agency (FEMA) Resources Expended On Activities Relating to Nuclear Regulatory Commission (NRC) Hearings On the Adequacy of State and Local Radiological Emergency Preparedness (REP) Plans
July 1, 1980 - April 30, 1983

	Staff Months	Expenses
Program Support		
Region 1	2.8	$220
Region 2	0.9	$4750
Region 3	21.0	$7260
Region 4	12.8	$5450
Region 5	17.8	$10,050
Region 6	0.5	$6,766
Region 7	1.3	$675
Region 8	0	0
Region 9	6.6	$7740
Region 10	0	0
Headquarters	14.5	$2500
Legal Support (Regional & Headquarters counsel)	32.6	$56,457
Total	110.8	$101,868

Federal Emergency Management Agency
Washington, D.C. 20472

Submittal for the Record

1. Q. What is and should be the responsibility, if any, of the federal government in the establishment and development of standards for offsite emergency preparedness plans for nuclear power plants? What federal agency is or should be responsible for this activity?

A. a. Pursuant to statutory and regulatory mandates, the Federal government develops and establishes standards for offsite emergency plans and preparedness. These standards and related evaluation criteria are contained in the document, NUREG-0654/FEMA-REP-1, Rev. 1, issued jointly by the Nuclear Regulatory Commission (NRC) and the Federal Emergency Management Agency (FEMA). These standards are also included in the NRC rule, 10 CFR 50.47(b) and in the FEMA rule, 44 CFR 350.5(a). While the basic standards have been published jointly by FEMA and the NRC, other Federal agencies provided significant input into the development of this document. Also, other Federal agencies (e.g., Environmental Protection Agency and the Department of Health and Human Services) promulgate emergency preparedness guidance supportive of the guidance published by FEMA and the NRC.

b. The Federal government establishes these standards to provide a basis for adequate and uniform radiological planning and preparedness by State and local governments. The NRC is responsible for establishing these standards because of the close relationship of offsite preparedness to its statutory licensing functions, and because NRC has the legal authority to determine the overall adequacy of preparedness to protect the public health and safety. FEMA is responsible to provide findings and determinations to NRC as to whether State and local government emergency plans are adequate and capable of being implemented. At the time the basic guidance (NUREG-0654/FEMA-REP-1) was published, NRC was required by law (Section 109, P.L. 96-295) to consult with FEMA in the development of standards for State radiological emergency response plans.

c. State and local governments have looked to the Federal government to establish these standards and have generally adopted and used them for their intended purposes.

d. These arrangements should be continued.

2. Q. What is and should be the responsibility of state government if any, in the development and establishment of standards for off-site emergency preparedness plans for nuclear power plants? Should state governments be allowed to enact more rigid standards or requirements than those imposed by the federal government?

3. Q. What is and should be the responsibility, if any, of local governments, in the development and establishment of standards for off-site emergency preparedness plans for nuclear power plants? Should local governments be allowed to impose more stringent standards or requirements than those required by either the federal or state governments? What is a local government for purposes of this question?

A. a. State and local governments are not required by FEMA or the NRC to develop standards. In fact, State-imposed standards more strict than Federally-established standards have been struck down by Federal courts. The standards used for evaluating State and local emergency planning and preparedness are developed and established by the Federal government pursuant to the Atomic Energy Act, as amended.

b. With respect to the development and establishment of Federal standards, State and local governments play a key role through participation in the rulemaking process conducted in the "Federal Register," in formal workshops sponsored by the NRC and FEMA, and informal exchanges with Federal Regional staffs.

c. A definition of "local government" is provided in the FEMA rule, 44 CFR 350.2, and refers to counties, parishes, cities, towns, and municipalities within the plume exposure pathway emergency planning zone (EPZ) when any of these entities has specific roles in emergency planning and preparedness in the EPZ. In addition to the specific sub-county units listed in 44 CFR 350.2, FEMA-NRC guidance (NUREG-0654/FEMA-REP-1, Rev. 1) also includes townships and villages (Section I. E.).

4. Q. What is and should be the responsibility of the federal government, if any, in the preparation of off-site emergency preparedness plans for nuclear power plants?

A. a. The Federal government provides planning and preparedness standards and technical assistance to State and local governments for their development of emergency response plans and for the evaluation of these plans as tested through exercises. Federal observers evaluate these exercises to determine if the State and local emergency response plans can be implemented. This assistance does not include preparation of State and local plans.

b. In compliance with E.O. 12241, FEMA has published in the December 23, 1980, Federal Register, the "National Radiological Emergency Preparedness/Response Plan for Commercial Nuclear Power Plant Accidents (Master Plan)." This Master Plan will be superseded by the Federal Radiological Emergency Response Plan (FRERP) in December 1983. It will encompass not just accidents at nuclear power plants but all types of peacetime radiological accidents. Through the Master Plan and the FRERP, the capabilities of the Federal government will be enhanced to provide assistance and resources to State and local governments for responding to actual emergencies.

5. Q. What is and should be the responsibility of state government, if any, in the preparation of offsite emergency preparedness plans for nuclear power plants?

6. Q. What is and should be the responsibility of local governments, if any, in the preparation of offsite emergency preparedness plans for nuclear power plants?

A. a. Under the NRC rule, 10 CFR 50.33 and 50.47, the submission of State emergency plans by the licensee (as well as local and utility plans) is necessary to meet offsite preparedness requirements of the NRC licensing process. In addition, FEMA's proposed rule, 44 CFR 350, provides for voluntary submission of plans by States to FEMA for review and approval. State governments that have or will have nuclear power plants generally have accepted responsibility for developing these plans and have been willing to use FEMA's review and approval process.

b. Without regard to the NRC's requirements, State and local governments have an inherent responsibility to develop emergency response planning and preparedness to protect the health and safety of their citizens from the effects of many types of contingencies, including nuclear power plant accidents.

c. These arrangements have been shown to be generally satisfactory and should be continued.

7. Q. What is and should be the responsibility of the federal government, if any, for the implementation of offsite emergency preparedness plans for nuclear power plants?

A. a. As stated in 4.b., the Federal government is required to develop a Federal emergency response plan (Master Plan/FRERP) for commercial nuclear power plant accidents to assure adequate response by Federal agencies in an actual emergency to assist State and local governments. To assure this capability, the Federal government periodically exercises its plans to demonstrate its capability to implement its planning and preparedness. Also, the FRERP has been used in responding to an actual radiological emergency created by the reentry of the Russian (Cosmos 1402) satellite. We do not believe that the Federal government should be involved in implementing or replacing State and local plans. Federal response should implement the FRERP and this response should supplement that of the State and local governments.

b. The above are considered proper roles for the Federal government and should be continued.

8. Q. What is and should be the responsibility of the state governments, if any, for the implementation of off-site emergency preparedness plans for nuclear power plants?

9. Q. What is and should be the responsibility of local governments, if any, for the implementation of off-site emergency preparedness plans for nuclear power plants?

A. a. Under both the NRC rule 10 CFR Part 50 (Appendix E) and the FEMA rule (350.9), State and local governments are required to exercise emergency response plans to demonstrate that their plans can be implemented. In addition, NUREG-0654/FEMA-REP-1 stresses the principle of "preparedness-in-being" which means, among other things, that an emergency plan is of limited value without the capability and commitment to implement it. These must come from State and local governments.

b. Just as State and local governments have an inherent responsibility to develop emergency response plans for a range of contingencies, including nuclear power plant accidents (see 5.b.), they also have a commensurate responsibility to assure they can implement these plans.

c. These arrangements are satisfactory and should be continued.

10. Q. What is and should be the responsibility of the federal government, if any, in determining the adequacy and implementability of an off-site emergency preparedness plan for a nuclear power plant?

A. a. Under the NRC FY 1982/1983 Appropriation Authorization (Public Law 97-415), adequate offsite preparedness around nuclear power plants is established as a condition of licensing and continued operation for these plants. Under the same law, a role for FEMA is specified in relation to the NRC licensing process. Also, both the NRC's and FEMA's role in determining the adequacy and implementability of plans is presented in 10 CFR 50.47. These roles and responsibilities entail establishing the standards for evaluating offsite preparedness, evaluating utility, State, and local government emergency response plans, and evaluating exercises designed to test these plans. These joint (FEMA-NRC) responsibilities are also delineated in a Memorandum of Understanding (November 1980).

b. FEMA's specific role in evaluating State and local government preparedness is presented in 44 CFR 350. Other Federal agencies which have responsibilities associated with radiological planning and preparedness are also involved in evaluating State and local government preparedness. [See 44 CFR 351 (48 FR 10758) for a statement of responsibilities.]

c. These arrangements are satisfactory and should be continued.

11. Q. What is and should be the responsibility, if any, of state government in determining the adequacy and implementability of an off-site emergency preparedness plan for a nuclear power plant?

A. a. The Federal evaluation process (see 10. a., and b.) entails self-evaluation of State preparedness by State governments in that this process is a cooperative effort between State and local governments and the Federal government. Also, the process is iterative in that it involves ongoing exchanges between these parties to identify and correct deficiencies.

b. When submitting State and local plans to FEMA for review and approval, the Governor or his designee is required to submit a statement that the plans are in his/her opinion adequate to protect the public health and safety of the people who live within the emergency planning zone of the power plant.

c. State and local governments have inherent responsibilities to not only prepare emergency response plans for nuclear power plants but, also, to evaluate their own preparedness. The guidance provided by the Federal government in the form of planning standards and related criteria can be used by State governments to evaluate their emergency plans, exercises, and general preparedness.

d. To the extent there are identified deficiencies in local government preparedness, FEMA looks to the State government to see that these local deficiencies are corrected in a timely fashion. Also, if compensatory actions are needed for local governments, FEMA looks to the State government to assure that appropriate actions are taken by other local governments or itself.

e. These arrangements are satisfactory and should be continued.

12. Q. What is and should be the responsibility, if any, of local governments in determining the adequacy and implementability of an off-site emergency preparedness plan for a nuclear power plant?

A. Same response as is provided for State governments in 11 a, c, and e.

13. Q. What is and should be the responsibility of the federal government, if any, for financing the costs of development and implementation of an off-site emergency preparedness plan for a nuclear power plant?

A. a. No Federal funds are currently provided to State and local governments and earmarked solely for radiological preparedness for nuclear power plants. FEMA believes this overall policy should continue. States should basically rely on their own and utility resources to finance the costs of development and implementation of their planning and preparedness.

b. Some limited financial assistance is available to State government from FEMA under two statutes--the Disaster Relief Act of 1974, as amended, and the Federal Civil Defense Act of 1950, as amended. Any funding available under these authorities is provided to State governments on a matching (50/50) basis. This financial assistance is not particularly addressed to radiological preparedness as both programs have application to a wide range of emergencies. FEMA believes this limited financial assistance should continue as it is currently provided to States.

14. Q. What is and should be the responsibility of the state government, if any, for financing the costs of development and implementation of an off-site emergency preparedness plan for a nuclear power plant?

15. Q. What is and should be the responsibility of the local governments, if any, for financing the costs of development and implementation of an off-site emergency preparedness plan for a nuclear power plant?

A. Some States have acquired financial assistance from utilities. Often, this is an appropriate source for financial assistance as the presence of the utilities' nuclear power plants has prompted the need for offsite radiological planning and preparedness. Otherwise, costs of preparing State and local plans should generally be borne by the public in much the same manner as other forms of public programs for protection of health and safety.

STATEMENT
By
Murray R. Edelman
Chairman, Atomic Industrial Forum Committee on
Reactor Licensing and Safety
before the
Subcommittee on Nuclear Regulation
Senate Environment and Public Works Committee
April 15, 1983

My name is Murray Edelman. I am Vice President, Nuclear Group, of the Cleveland Electric Illuminating Company of Ohio. I am also Chairman of the Atomic Industrial Forum's Committee on Reactor Licensing and Safety and it is in that capacity that I am here today. This AIF Committee is composed of a broad cross-section of utilities, reactor vendors and architect engineers and has been active in proposing solutions to generic reactor licensing and safety issues for many years. Accordingly, we have actively participated in and followed the development and implementation of additional requirements imposed on the nuclear industry in the area of emergency planning as a result of the TMI event.

With me today are Dr. Frederick Buckman, Executive Manager, Licensing and Safety, Consumers Power Company and Chairman of AIF's Subcommittee on Emergency Preparedness and Siting, and Mr. George Gleason, Executive Vice President and General Counsel, American Nuclear Energy Council. On behalf of this panel, I would like to express our appreciation to this Subcommittee for the opportunity to present our views on the subject of emergency planning.

The nuclear industry has recognized the need to enhance radiological emergency planning. Indeed, the industry has taken action, both independent of and pursuant to the regulatory requirements, to upgrade emergency preparedness. For example, the industry established the Institute of Nuclear Power Operations (INPO) to apply TMI lessons learned and industry experience to promote the highest standards of excellence for operating nuclear electric generating stations. INPO's Emergency Preparedness Department conducts a program of site visits to review emergency preparedness activities and observe drills. INPO also operates and maintains an Emergency Response Center that has 24-hour a day coverage.

However, regardless of how responsible the nuclear industry is in addressing emergency preparedness, the present regulatory process permits a State or local govermental agency to directly jeopardize an operating license, or the issuance of one, at will. This jeopardy will continue for the life of the operating license. NRC and FEMA are attempting through the present regulatory process to do indirectly what they cannot do directly; that is, to compel States and localities, through the utilities, to adopt their requirements. The utilities cannot compel State and local government units to take action if they are unwilling to do so; yet the regulations impose severe, punitive measures against utility licensees unless State and local governments act consistently with NRC and FEMA requirements. This process has been referred to by some as "regulatory extortion". In fact, it constitutes a third party "veto" in the regulatory process. There is no end to this situation in sight.

In a paper given by James M. Thomas, Washington State Department of Emergency Services, entitled, "No Free lunch - the High Cost of Emergency Planning", the following points were made:

- "In the past five years the cost of developing, maintaining and exercising state and local government fixed nuclear facility emergency response plans has tripled."

- "In many areas of the nation, city and county goverments do not cooperate as well as one might think. Getting two rival cities to agree to a common concept of operations can be an experience most emergency planners would rather pass up."

- "A rule of thumb which is useful to anyone contemplating developing a plan or plans for response to a nuclear plant emergency is that the greater the number of jurisdications involved, the greater the cost of the plan(s)."

The experience of many in the nuclear industry bear out Mr. Thomas' comments.

Authority

The NRC and the licensee have absolutely no authority over state and local government. Nevertheless, it is the utility's problem to obtain the necessary cooperation from the State and local agencies, even though they have no authority to fulfill this responsibility. As stated by the NRC staff in the January 17, 1980 NRC Workshop in San Francisco, "Through the requirements for adequacy of state and local plans as a condition of licenses, there's a great incentive for this (utilty devoting manpower or money to assist in developing state and local preparedness) to happen. (page 48 of the transcript)."

The reality of the present regulatory process is that it has allowed State and local agencies to take advantage of the situation with unreasonable requests (firehouses, bridges, roads, helicopters, distribution of thousands of dosimeters, etc.). Since the utility needs a license to operate the plant and the local agency needs additional finances to provide perceived adequate services in many cases, the alternatives leave the utility little option but to capitulate, whether the additional funds are needed or not.

To add additional uncertainty to agreements made on emergency preparedness, State and local elections may have a direct bearing on the status of the plan. Although the utility may have executed emergency planning agreements with the prior administration, the newly elected individuals may have different perceived needs for performing their responsibilities. Negotiations on emergency planning agreements are subject to continual reopening and further complexity and uncertainty can be injected into the process.

FEMA Review Process

In order to describe in more detail some of the problems facing utilities in this area, I will discuss the process for getting offsite emergency plans reviewed. This process is in and of itself extremely complex. The State and local plans are developed and sent by the Governor, or his designee, to FEMA requesting a formal review. A Regional Assistance Committee (RAC), with representation from FEMA, NRC, Department of Energy, Department of Agriculture, Department of Transportation, Department of Health and Human Services and EPA, review the plan and submits its comments to the State and local agencies. After resolving the comments, the final plan is subjected to a joint exercise and critique. Following the critique, there is an evaluation period, at which time any recommended changes are made to the plan and the revised plan is sent to FEMA headquarter for a Federal Interagency Central Coordinating Committee review which involves the headquarters staff; the Associate Director makes the final FEMA review and assessment of the plans. Any findings, including a listing of deficiencies, are formally communicated to the governors of the affected states and the NRC. It should be noted that the applicant or licensee is not explicitly involved in this review process. However, the affected utilities monitor very closely the progress of the review and provide assistance where possible, to the affected State and local agencies.

In accordance with the above process, the governor of the affected state, or his designee, has to request formally a FEMA review of the State plan. The application from the State must contain a statement that the State plan, with its annexes, is, in the opinion of the State, adequate to protect its citizens. If the State or local governmental agency decides, for whatever reason, not to submit a plan for review, the regulatory process, as presently structured, does not allow the utility to submit a plan directly to FEMA. In addition, the State or local agency may determine that it is not possible to develop an adequate plan and has no obligation to the utility or any federal agency to provide a technical basis for their conclusion. In such a situation, the burden is on FEMA and the NRC to decide if adequate emergency preparednesss is still available in light of the State or local position. In actual fact, the burden is on the utility to show that adequate emergency preparedness is available.

For example, Long Island Lighting Company is presently faced with the situation where the legislature of Suffolk County, the County in which the plant is located, has concluded that no local radiological emergency plan for a serious nuclear accident will protect the health, welfare and safety of the County residents. Their present position is that no local emergency plan will be adopted or implemented. The governor of New York has directed the State officials not to act on the emergency plan until the cooperation and participation of the local government is assured. (See references 1 and 2)

The schedule and content of the FEMA review is particularly important to Atomic Safety and Licensing Board proceedings. Since FEMA may have to present testimony at the hearings, any delay in the review process can directly affect the hearing schedule and outcome. If the individual testifying for FEMA is not adequately prepared, as has happened, his testimony can cause additional requirements or questions to be introduced which may have to be addressed by the utility.

To complicate the process even further, some utilities are being asked during hearings or emergency plan reviews to justify certain aspects of emergency preparedness which have been found acceptable during other non-nuclear related emergencies. For example, utilities are being asked to obtain formal agreements with specific emergency personnel that they will participate in the response to a nuclear related emergency. These are professional individuals, trained in their respective roles during an emergency and dedicated to protecting the health and safety of the public. Based on actual experience, such as the Elizabeth, New Jersey fire that occurred in May, 1979 at a chemical plant where hazardous materials were stored, emergency personnel have performed their job without hesitation. There is no reason why they should not perform as well in a nuclear emergency.

As another example in support of this, an explosion of a tank containing acrolien at Union Carbide in Louisiana on December 11, 1982. At 4:25 AM the State Police recommended that an evacuation be conducted within a five mile radius around the site; implementation of the plan began at 4:40 AM. The evacuation began in the middle of a heavy rainstorm with Sheriff's deputies and fire company volunteers going door to door to notify residents. Approximately 17,700 persons were evacuated; it was certified as complete by 7:10 AM. (See reference 5)

In some cases, there are multiple FEMA regions within the 10 mile Emergency Planning Zone (EPZ). The FEMA regional districts border at the state line which can split the EPZ in terms of responsibility. Different FEMA regions evaluate the state and local emergency plans and critique the exercises with different emphasis on the criteria. Also, differences in the state plans are made more difficult to resolve.

There are also differences from region to region regarding the criteria and how they are interpreted. For example, FEMA Region IX has developed clarification, or a definition of Region IX policy to assure that all parties are aware of their procedures and policies. This interpretation is not necessarily representative of other FEMA regions.

Financing of State and Local Emergency Preparedness

With the regulatory "incentive" to have adequate state and local emergency plans, utilities are providing a considerable amount of the financing required. The present arrangement for this funding at the State and local level places an inordinate financial burden on the utilities.

For example, the NRC estimated in its value/impact analysis supporting its final rule on emergency planning (SECY-80-275) that the, "typical costs to State and local governments to achieve a positive finding from NRC concurrence in their emergency response plans would be about $360,000 initial costs, plus $74,000 in annual updating costs". Based on actual experience, one utility spent more than $3,000,000 in assisting two States with equipment and the drafting of plans. Another utility spent $2,300,000 on State and local emergency plans.

Regarding the annual updating costs, the NRC estimated this to be $74,000. Actually, two States assessed one utility $1,050,000 in 1982 alone; the utility anticipates a similar assessment in 1983. Another utility paid an annual fee of $750,000 to one State alone. A utility in one State pays more than one-half of the total emergency planning budget of each of the counties included in the emergency planning zone. In one county, this amounts to $300,000 annually; for the more sparsely populated county (2,000 people), it is $100,000 annually.

Many states have passed laws requiring an annual assessment from utilities to maintain their State and local emergency preparedness. For example, in the state of New York, each licensee is assessed up to $250,000 annually and there is pending legislation to raise the ceiling from $250,000 to $950,000 for 1982-1983 and $500,000 for subsequent years (See reference 3).

The cost of emergency drills are substantial and growing. For example, in 1979, the cost of planning an exercise in one State involving three counties and the State was $10,500; in 1980, it was $312,500 and involved one additional county. As another example, in 1980, an exercise, involving the State and four counties, cost $20,000; however, in 1981 it cost $180,000 and involved one additional county. To add one final perspective, one utility spends between $50,000 and $70,000 to develop just the accident scenerio to be used in the drill.

Conclusions and Recommendations

With the previous discussion as background, there are several general conclusions that can be made:

- NRC and FEMA are attempting to do indirectly what they cannot do directly, that is, compel States and localities, through the utilities, to adopt their requirements. The utilities cannot compel State and local government units to take action if they are unwilling to do so; yet the regulations impose severe, punitive measures against utility licensees unless State and local governments act consistently with NRC requirements. This places the utility in an untenable situation without recourse;
- The emergency plan approval process for off-site emergency preparedness is complex and involves a number of

participants in concluding that the overall emergency plan is acceptable. This process introduces additional uncertainty, complexity, expense and potential delay into the regulatory process unnecessarily, with questionable benefit to the health and safety of the public.

- Mechanisms for emergency planning for industrial and natural accidents are in place and have been exercised to respond to many situations - thousands of people have been successfully evacuated in a very short time as a result of an accident such as a train derailment or a fire. Actual experience demonstrates that people can be evacuated safely and in a short period of time. There is no reason to believe that state and local professionals will not respond in like fashion during a nuclear related emergency.

- The present source terms underlying emergency planning considerations are under intense review by many segments of the industry and government. The results of these studies have the potential of reducing the emergency planning zone and changing the time needed to notify the public to evacuate or take shelter. With the expectation that research and analyses over the next year or so will confirm this potential, the need for moderating the excesses described in this testimony is clear;

- The emergency planning effort must not be evaluated in a vacuum. As has always been the philosophy in this industry, defense in depth involves the hardware, software, training and planning on an integrated basis. Emergency planning can only be considered rationally in a context that gives appropriate consideration to the specific site, the design of the plant and emergency preparedness together.

Given these conclusions, we recommend the following:

- As a minimum, Congress should again extend the provisions of Section 5 of the 1983-1984 authorization bill and make clear NRC's responsibility to evaluate a plan submitted by the utility applicant, in lieu of a State or local plan, and make a determination based on that submittal regarding the adequacy of emergency preparedness. In addition, Congress should take whatever additional actions are needed to assure the full implementation of the safeguards Congress intended to establish against misuse of the emergency planning process;

- The whole subject of financing emergency planning around commercial nuclear facilities should be addressed by Congress to bring under control the uncertain financial requirements the utilities presently face. This review should factor in the utilities' experiences over the last three years;

- Congress should reexamine the basic institutional framework currently in place with the intent of providing the actions necessary to support a more workable process and a more reasonable interface among the participants. We would be pleased to provide further supporting information to Congress during these deliberations.

TABLE OF REFERENCES

Reference	Title
1	Chronology of Events Pertaining to Emergency Planning for the Shoreham Nuclear Power Station
2	The Course of Offsite Emergency Preparedness for the Shoreham Nuclear Power Station
3	Cost Data on Emergency Preparedness
4	Institutional Examples (Problems)
5	Union Carbide Explosion - Executive Briefing

Reference 1

CHRONOLOGY OF EVENTS PERTAINING TO EMERGENCY PLANNING FOR THE SHOREHAM NUCLEAR POWER STATION

May 15, 1968 -- LILCO applied for a permit to construct the Shoreham Nuclear Power Station.

September 21, 1970 -- Suffolk County Executive H. Lee Dennison stated in the Shoreham construction permit proceeding during limited appearances, before the Atomic Safety and Licensing Board (ASLB) that "I urge you, as County Executive, to grant immediate licensing for construction of this nuclear power facility as proposed at Shoreham." CP Tr. 216 (September 21, 1970).

1971 -- In his Final Report to the Suffolk County Legislature, County Executive Dennison urged "[u]nited, agressive, stand-up-to-be-counted action by the governments of Suffolk County" in support of Shoreham.

January, 1972 -- In his Report to the Suffolk County Legislature, County Executive John V. N. Klein stated: "My predecessor has openly and aggressively endorsed the proposal for the Shoreham Atomic Plant. In this annual report, I reconfirm that executive commitment and support."

April 12, 1972 -- Based upon testimony during the construction permit proceeding that showed LILCO "had outlined its plan for coping with emergencies and has conferred with New

York State and local authorities with respect to them," the Licensing Board rejected intervenor Lloyd Harbor Study Group's assertion that LILCO was unable to achieve adequate emergency planning for Shoreham. Long Island Lighting Company (Shoreham Nuclear Power Station), LBP-73-13, 6 AEC 271, 285. The Atomic Safety and Licensing Appeal Board concurred. Long Island Lighting Company (Shoreham Nuclear Power Station), ALAB-156, 6 AEC 831, 853 (1973).

February 1973 -- Following the issuance of the Shoreham construction permit, the Suffolk County Department of Emergency Preparedness was directed by Executive Order to develop a "Response Plan -- Specific Operating Procedures for Major Radiation Incidents."

Spring, 1975 -- The State, County, and LILCO met to define the emergency planning roles and responsibilities of each body.

1976 -- LILCO planners and Suffolk County officials continued working together to define their roles and responsibilities in planning for the possibility of an emergency at Shoreham.

1977 -- In response to Federal regulations, Suffolk County Executive John Klein directed County Emergency Preparedness Director Norman Kelly to formulate an emergency response plan for Shoreham. The Suffolk Department of Transportation was asked to develop the evacuation section of the plan, which was based on an Emergency Planning Zone (EPZ) five miles in radius of the plant.

August 30, 1978 -- Suffolk County's General Radiation Emergency Plan was approved by County Executive Klein, and was reviewed and eventually accepted by the New York State Office of Disaster Preparedness.

September, 1979 -- As a result of the Three Mile Island accident in March 1979, the Nuclear Regulatory Commission (NRC) required expanded emergency preparedness plans. For example, additional planning was required for exercises and drills, public education and information, and notification methods. Earlier, the NRC issued new guidelines that established an EPZ 10 miles in radius of the plant. To comply with these new regulations, LILCO began discussions with private consulting firms so the County would have help in revising its plan.

December 28, 1979 -- LILCO Vice President John Gummersall and County Executive Klein signed a "memorandum of understanding" outlining the updated responsibilities of the County in emergency planning for Shoreham. In a cover letter to the memorandum it was noted that County Executive-elect Peter Cohalan had approved the terms of the agreement.

January 11, 1980 -- Chief Deputy Suffolk County Executive John Gallagher discussed with the new administration the status of Shoreham's Emergency Plans.

February 28, 1980 -- In cooperation with Suffolk County officials, Suffolk Emergency Planning personnel were given a private tour of the Shoreham site.

March, 1980 -- Company representatives met with about 60 members of Suffolk County departments involved with emergency planning, and filed nine volumes of material with the Legislature's Health Committee for public hearings on nuclear power.

April 28, 1980 -- LILCO, New York State, and Suffolk County met to discuss State plans.

September, 1980 -- At the direction of Suffolk County officials, the Company requested EDS Nuclear, Inc., of Melville, to prepare a proposal to revise the emergency plan.

December, 1980 -- EDS met with Chief Deputy Executive Gallagher to discuss its proposal to the County.

February 8, 1981 -- Mr. Gallagher met with EDS a third time. He turned down the EDS proposal and said that instead the County would develop the revised emergency response plan on its own, since County personnel had already worked on the original plan. The Company agreed to support the County's efforts.

February 18, 1981 -- LILCO met with Suffolk County Planning Department Director Dr. Lee Koppelman to discuss emergency planning.

March 15, 1981 -- LILCO Vice President Dr. Matthew Cordaro, Dr. Koppelman, and Mr. Gallagher signed a contract calling for the County to produce a Radiological Emergency Response Plan within six months, at a cost to the Company of $245,000. However, the Suffolk County Legislature, which was not consulted on the terms of the contract, later rejected a resolution that would have permitted the County to accept the initial contract payment from the Company.

March 27, 1981 -- Mr. Gallagher met with LILCO on emergency planning.

September 10, 1981 -- An amended contract was submitted and accepted by the County Legislature. As stipulated in the contract, LILCO issued a check for $160,000 to the Suffolk County Planning Department for the first payment on the contract. The balance would be due upon completion of the plan. A March 18, 1982 deadline was set to complete the emergency response plan.

February, 1982 -- LILCO continued to work with Suffolk County officials, but the County indicated it would not be finished with the emergency plan by the March 18 deadline that was established in the contract. To help complete the project, LILCO offered to have Stone & Webster Engineering Company, the engineering design firm at Shoreham, work on the plan with the County.

February 18, 1982 -- Suffolk County officials announced that the law firm of Kirkpatrick, Lockhart, Hill, Christopher and Phillips of Washington, D.C., had been retained to represent the County in the upcoming Shoreham Atomic Safety and Licensing Board (ASLB) hearings. Press accounts indicated that an attorney from the firm, Herbert Brown, recommended the County cancel the emergency planning contract with LILCO since Suffolk County would be an intervenor against LILCO in the ASLB hearings. At this point, the bulk of the work on the County's emergency plan had been completed.

February 19, 1982 -- Dr. Koppelman sent a letter to Dr. Cordaro indicating Suffolk County would return the $150,000 that LILCO paid the County in compliance with the contract, and that, in effect, the County was attempting to unilaterally cancel the contract.

March 17, 1982 -- Dr. Cordaro responded to the County in a letter stating that "LILCO is relying on the County to perform its obligations under the contract."

March 23, 1982 -- The Suffolk County Legislature passed a resolution authorizing the County to prepare another emergency plan. The resolution also called for consultants to be paid with County funds, and for the plan to be effective only after approval by the Legislature. The legislation further noted that only the County-approved plan would be submitted to the NRC and the Federal Emergency Management Agency (FEMA). The County's new plan was to be completed by October 1, 1982.

April 14, 1982 -- At the ASLB pre-hearing conference, Suffolk County indicated erroneously that no County emergency plan existed. By saying this County officials were refusing to recognize years of work by their own planners that resulted in a voluminous plan.

April 15, 1982 -- County employees were ordered by Deputy County Executive Frank Jones to stop communicating with LILCO officials on emergency planning.

April 29, 1982 -- LILCO officials met with State officials to determine whether LILCO should submit the initial version of the plan to the state for review. It was agreed that LILCO would submit the plan to the Disaster Preparedness Commission (DPC).

May 10, 1982 -- LILCO submitted the draft emergency plan to the DPC Chairman with a letter clearly noting that Suffolk County had not endorsed the document.

May 18, 1982 -- The Suffolk County Legislature unanimously approved a three-part proposal that challenged LILCO's authority to submit the draft plan. The proposal called for an investigation to determine whether the Company violated any laws by submitting the plan without County authorization. The legislation also called for the Governor and State officials to be notified that the plan lacked County sanction. Finally, the proposal established guidelines to develop a new plan.

May 26, 1982 -- Former Suffolk County Attorney Howard Pachman was hired as special counsel to the Suffolk County Legislature to investigate whether LILCO's submission of the emergency plan without Suffolk's approval was legal. A legislative committee was formed to head the investigation. Named to it were Co-Chairpersons John Wehrenberg (R-Holbrook) and Rose Caracappa (R-Selden); Joseph Rizzo (R-Islip Terrace), Louis Howard (R-Amityville), Gregory Blass (R-Riverhead), and Wayne Prospect (D-Dix Hills). The Legislature appropriated $25,000 for the committee's expenses.

June 9, 1982 -- DPC Chairman Hennessey announced that the draft plan submitted by LILCO was not sufficiently complete for submission to the full Commission and identified 48 out of 99 elements in the plan that needed attention. In press statements made after his decision, Chairman Hennessey explained that the DPC would critique and evaluate any revised plan. He further called the first draft the "best we have received from any county in the state, and there is no fundamental reason why the plan cannot be corrected fairly easily."

June 16, 1982 -- Deputy Suffolk County Executive Frank Jones said the County was preparing to spend $500,000 to draw up its new emergency plan.

June 17, 1982 -- LILCO Vice President Ira Freilicher met with Mr. Jones in an attempt to explore ways for the County to proceed with emergency planning using the previously drafted plan as an interim plan.

June 22, 1982 -- The County filed in the Shoreham operating license proceeding its first set of contentions on emergency planning.

September 17, 1982 -- LILCO Vice President Matthew C. Cordaro wrote the County, again seeking cooperation:

> Let me close by repeating that much of the work LILCO has done on the offsite plan, as well as the resources and experience of LILCO employees and consultants, would be of use to the County in developing its plan. LILCO takes no pleasure in working on emergency planning without the County. I urge you to resume joint planning with LILCO as soon as possible.

September 22, 1982 -- In a memo to Suffolk County Executive Peter Cohalan, Mr. Jones said that because of "unavoidable delays," the County Steering Committee would not have a working draft of the plan until October 18, 1982, instead of the October 1 deadline. He also noted the plan the members were working on would not contain detailed procedures for certain items.

September 29, 1982 -- Dr. Cordaro invited Mr. Jones to an informational meeting to discuss the distribution of tone alerts to special facilities in the vicinity of Shoreham.

October 7, 1982 -- LILCO asked Mr. Jones for permission to proceed with the installation of communications equipment at County facilities.

October 8, 1982 -- LILCO submitted a revised copy of the initial emergency plan to the DPC since Suffolk County's new plan still wasn't finished.

October 21, 1982 -- LILCO President Will Uhl wrote to Suffolk County Executive Peter Cohalan suggesting a mediation panel be formed to help reach an agreement on emergency planning.

November 16, 1982 -- James J. O'Rourke, of the Suffolk County District Attorney's office, announced that in response to inquiries by special counsel Howard Pachman, he had found that LILCO had done nothing illegal by submitting the original draft plan to the DPC on May 10. He said the Company fully acknowledged Suffolk County's denial of the plan in a cover letter with the draft.

November 23, 1982 -- After focusing the parties' and Licensing Board's attention on emergency planning for months in the operating-license proceeding by conducting discovery, drafting contentions, and filing written testimony, the County refused to go forward with cross-examination on onsite emergency planning issues. As a result, the County's contentions were dismissed.

December 2, 1982 -- A draft of the new Suffolk County emergency response plan was submitted to the County Legislature, establishing an emergency planning zone 20 miles in radius of the plant rather than the 10-mile radius suggested by Federal regulations. At the same time, the County Executive's Office filed suit with the State Supreme Court requesting a temporary restraining order to prevent the DPC from acting on the LILCO-submitted plan until the County could submit its new version.

December 7, 1982 -- A temporary restraining order was granted just one day before the DPC's scheduled meeting to review the LILCO-submitted plan. It had been reported that the DPC was likely to have approved this plan.

December 10, 1982 -- At an Albany Supreme Court hearing, all parties agreed that the County must submit its emergency response plan to the DPC by February 22, 1983. The agreement further stated that if Suffolk County failed to meet this deadline, it could not seek further court action to prevent the DPC from reviewing and possibly approving the LILCO-submitted plan.

January 17, 1983 -- The Legislature began two weeks of public hearings on emergency planning.

January 18, 1983 -- Vice Presidents Ira Freilicher and Matthew Cordaro testified at the second day of public hearings called by the Suffolk Legislature. Several international experts from fields related to emergency planning were also present to help answer questions by the Legislature. Observers from the press noted, however, that during the day's proceedings, some Legislators appeared to be less than professional in their approach to the hearings. Newsday's Ellsabet van Nostrand wrote, "Some Legislators are far more interested in grandstanding for political purposes, than in getting some badly needed information."

January 27, 1983 -- At the request of Legislator Caracappa, LILCO Chairman of the Board Charles Pierce addressed the Legislators and Suffolk County Executive Peter Cohalan during the final segment of the Legislature's hearings, answering questions about emergency planning and unrelated topics. He noted, in response to a question by Mr. Cohalan, that lately it had been difficult for the Company to work with members of the County government and that he hoped the situation would improve soon.

January 19, 1983 -- In a letter from Legislator Ferdinand Gleise (R-E. Setauket) to Deborah Schechner, President of the Suffolk People's Action Coalition (a local group opposed to Shoreham), Legislator Gleise stated "the reasoning behind the hearings for a so-called plan, at the present time, is to use the facts presented as a basis for a future lawsuit."

February 10, 1983 -- Presiding Officer Howard announced that he was supporting the County's draft emergency plan, and urged the rest of the Legislators to do the same. Brookhaven Town Supervisor Henrietta Acampora and Riverhead Town Supervisor Joseph Janoski wrote to Howard supporting his stand.

Shoreham's entire 10-mile EPZ lies within the Towns of Brookhaven and Riverhead.

February 16, 1983 -- During a press conference in Hauppauge, County Executive Cohalan said he believed no evacuation of the public could be accomplished on Long Island and called for the abandonment of the Shoreham plant. Nassau County Executive Francis Purcell and senior members of the Long Island delegation to the State Legislature criticized Cohalan's stand and insisted that the plant was safe, evacuation was possible, and abandoning Shoreham would harm the Company and the Long Island economy. Newsday noted later in an editorial that County Executive Cohalan's statement "violates the responsibility as a public official by making emotional appeals and feeding fears about the plant." Further, the editorial pointed out that Mr. Cohalan's position on the issue, "crumbles unless he can establish beyond any reasonable doubt that an adequate emergency plan is impossible," and that task, the editorial offered, "doesn't look easy."

February 17, 1983 -- New York Governor Mario Cuomo announced in a news release that he had directed State officials not to act on the emergency plan submitted to the DPC by LILCO until the cooperation and participation of the local government was assured. The Governor also offered assistance to Suffolk County and LILCO so that an "adequate and implementable evacuation plan for Shoreham" can be developed, the release said. Later in the day, the Suffolk County Legislators voted 15-1 to reject the County's draft emergency plan. The one vote in support of the plan was cast by Presiding Officer Howard.

February 18, 1983 -- Presiding Officer Howard announced that he was creating a task force to study the local and regional impact if Shoreham does not operate. The proposed task force would include representatives from business, government, schools, labor and from the Company, according to statements made by Mr. Howard. That same day the Governor elaborated on statements he made the previous day. Mr. Cuomo noted that press speculation on whether Shoreham would open was "premature," and that while the issue of emergency planning was far from settled, he pointed out, "that doesn't mean the County will not change its mind."

February 22, 1983 -- The Suffolk Legislature voted to hire two consulting firms, Georgetown Associates and Energy Systems Research Group, to study the financial consequences if Shoreham does not operate.

February 23, 1983 -- Suffolk County filed a motion to terminate the Shoreham operating-license proceeding, on the grounds that the County's participation in emergency planning is required by regulation, and that the County was not going to participate.

Reference 2

The Course of Offsite Emergency Preparedness for the Shoreham Nuclear Power Station

Title 10 CFR §§ 50.33(g) and 50.47 provide for development of emergency plans at a Federal, State, and local level for nuclear power plants. In Suffolk County, New York, these regulations are being used by the County to oppose the licensing of the Shoreham Nuclear Power Station (Shoreham) built by Long Island Lighting Company (LILCO). The County has resolved not to prepare a local radiological emergency plan and, in the County's view, the NRC regulations do not permit the agency to issue an operating license, under any circumstances whatsoever, unless the County is participating in the emergency planning process.

Suffolk County, in effect, is attempting to veto Shoreham using the NRC emergency planning regulations. What's more, the County's position on emergency planning, on which the County believes NRC operating licenses should depend, has shifted radically and unpredictably over time.

At the time of the limited appearances in the Shoreham construction permit (CP) proceeding on September 21, 1970, then-Suffolk County Executive Dennison said to the Atomic Safety and Licensing Board (ASLB or Licensing Board):

> I urge you, as County Executive, to grant immediate licensing for construction of this nuclear power facility as proposed at Shoreham.

CP Tr. 216 (Sept. 21, 1970). Emergency planning was addressed in the CP proceeding, and the ASLB's decision shows that "local authorities" were consulted:

> The Applicant has outlined its plan for coping with emergencies and has conferred with New York State and local authorities with respect to them. The Board finds the Applicant's emergency planning adequate for the construction permit stage.

Long Island Lighting Company (Shoreham Nuclear Power Station), LBP-73-13, 6 AEC 271, 285 (1972) (footnotes omitted).

There followed some 10 years of cooperation between LILCO and Suffolk County. A County "General Radiation Emergency Plan" was approved by County Executive John Klein in 1978 and, in response to the Three Mile Island accident, Suffolk County signed a contract in September 1981 promising to prepare "a County Radiological Emergency Response Plan, as required by Federal Regulations," for a fee of $250,000 to be paid by LILCO. The County Department of Planning represented in the contract that it was familiar with the applicable federal regulations and that it believed it could develop a plan that complied with them. Work on the new plan proceeded apace, with LILCO and the County having frequent meetings and phone conversations over the plan.

But suddenly the County officials' attitude changed. In February last year the County repudiated the contract with LILCO and the work of its Department of Planning. For several months thereafter it went through the process of producing a draft emergency plan all its own, refusing advice, help, or other participation by LILCO and declining to involve the State of New York in the process. During this period LILCO tried repeatedly to resume joint planning with the County, as when a LILCO Vice President wrote the County on September 17, 1982, saying among other things:

> Let me close by repeating that much of the work LILCO has done on the offsite plan, as well as the resources and experience of LILCO employees and consultants, would be of use to the County in developing its plan. LILCO takes no pleasure in working on emergency planning without the County. I urge you to resume joint planning with LILCO as soon as possible.1/

To no avail. Just last month, following hearings by the Suffolk County Legislature, County Executive Peter Cohalan issued a statement that "the unique local conditions of Long

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1/ Letter from Matthew C. Cordaro to Chief Deputy County Executive John C. Gallagher, Sept. 17, 1982.

Island make it impossible to protect the public safety if there were a serious accident at the Shoreham plant," that "Shoreham should never operate," and that he was "prepared to lead the fight in both Washington and Albany" against Shoreham. The following day the County legislature resolved:

> that since no local radiological emergency response plan for a serious nuclear accident at Shoreham will protect the health, welfare, and safety of Suffolk County residents, and since the preparation and implementation of any such plan would be misleading to the public by indicating to County residents that their health, welfare, and safety are being protected when, in fact, such is not the case, the County's radiological emergency planning process is hereby terminated, and no local radiological emergency plan for response to an accident at the Shoreham plant shall be adopted or implemented . . . .

Thus did a 12-year record of cooperation between LILCO and the County change virtually overnight. Soon thereafter the County presented the Atomic Safety and Licensing Board with a motion to terminate the Shoreham operating-license proceeding on the novel legal theory that the proceeding cannot go forward without the County's consent.

Suffolk County is saying that, under the NRC regulations, whenever a local government decides that the radiological risk from a nuclear plant is unacceptable, or that the plant is unacceptable for any other reason, it can shut down the plant by simply refusing to participate in emergency planning. And there is no basis for limiting this veto power to new plants waiting to come on line; the County's theory applies to already-operating plants as well. If the County's theory were to prevail[2], then the debate over nuclear safety would shift immediately from the NRC to local legislatures, city councils, and boards of supervisors across the country, where the fate of nuclear reactors would be decided under short-range political pressures, with the vote changing each time the political winds shifted. There should be no illusion that these decisions would be made on the evidence; the Suffolk County legislators heard from three different groups of experts but rejected LILCO's witnesses', the Brookhaven Laboratory scientists' and the County's own consultants' work, even as they earlier rejected the work of their Department of Planning. The next county to decide the issue might not bother with hearings at all.

The County's position points up the difficulties inherent in attempting to persuade local governmental entities to cooperate in emergency planning efforts.

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[2] The Atomic Safety and Licensing board has announced that it will rule on Suffolk County's motion to terminate on April 18, 1983.

A. As Early as the Construction Permit Stage, Suffolk County Endorsed Shoreham and Cooperated in Emergency Planning

The construction permit for the Shoreham Nuclear Power Station was granted on April 12, 1973, five years after the application was filed, and following contested hearings that included challenges to the choice of the site, the feasibility of emergency planning, and accident probabilities. See Long Island Lighting Company (Shoreham Nuclear Power Station), LBP-73-13, 6 AEC 271, 275-76, 278, 285, 298-99 (1972). At that time Suffolk County was not a party to the proceeding, but H. Lee Dennison, County Executive, made a limited appearance before the Licensing Board in 1970 to urge that the Board grant a construction permit for Shoreham:

> I am here in representation of the 1,100,000 people of the County of Suffolk, and I speak as the administrative head of the county government, as the county budget officer; and I have a certain basic responsibility for the health, safety and well-being of the people of the county, a concern with adequate and safe transportation, police, finances, the general economy, human relationships, public health and welfare, adequate and clear fresh water, and surely the assurance of the quality of service and consumer price for light and power.
>
> . . . .

> Now there isn't any other source for energy in this area. We can't depend upon the metropolitan region or New York State or the St. Lawrence powerplants. We must begin to be self-sufficient on our own because we are an island.
>
> . . . .
>
> I urge you, Mr. Chairman, as County Executive, to grant immediate licensing for construction of this nuclear power facility as proposed at Shoreham.

CP Tr. 209, 211-12, 216.

The provisions of the 1971 version of 10 CFR Part 50, Appendix E.II, required that the PSAR contain sufficient information to assure compatibility of the facility design and site with emergency planning requirements.[3] The NRC Staff found that Shoreham satisfied the requirements of Appendix E. CP Tr. 5969-73. In addition, intervenor Lloyd Harbor Study Group (LHSG) cross-examined during the construction permit hearings regarding LILCO's development of an emergency plan. Testimony showed that LILCO had outlined generally its plans for coping with emergencies in the PSAR (PSAR at XIII-4-1 to -3) and had discussed emergency planning with the Riverhead Police Department, Suffolk County Police Department, Suffolk County Health Department, Suffolk County Medical Society, and New York State Authorities. CP Tr. 2299, 2511-12.

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[3] The old Appendix E provided in pertinent part:

> The Preliminary Safety Analysis Report shall contain sufficient information to assure the compatibility of proposed emergency plans with facility design features, site layout, and site location with respect to such considerations as access routes, surrounding population distributions, and land use.
>
> As a minimum, the following items shall be described:
>
> . . . .
>
> B. Contacts and arrangements made or to be made with local, State and Federal governmental agencies with responsibility for coping with emergencies . . . .

In its initial decision, the Licensing Board rejected LHSG's assertion that LILCO was unable to achieve adequate emergency planning for Shoreham, pointing out that "[t]he applicant has outlined its plan for coping with emergencies and has conferred with New York State and local authorities with respect to them." 6 AEC at 285 (footnote omitted) (emphasis added). The Appeal Board concurred. Long Island Lighting Company (Shoreham Nuclear Power Station), ALAB-156, 6 AEC 831, 851 (1973).

Thus, the record shows that the County supported the application for a construction permit for Shoreham, agreed that planning was possible for Shoreham, and engaged in discussions with LILCO regarding emergency planning before the construction permit for Shoreham was issued. Intervenor LHSG's assertion in the CP proceeding that adequate emergency planning was not possible for Shoreham was rejected by the Board, based in part on the cooperation exhibited by LILCO and local authorities regarding emergency planning. This cooperation between the County and LILCO was to continue for over a decade.

B. The Continued Cooperation between LILCO and Suffolk County on Emergency Planning

Following the issuance of the Shoreham construction permit, the Suffolk County Department of Emergency Preparedness was directed by Executive Order in February 1973 to develop a "Response Plan -- Specific Operating Procedures For Major Radiation Incidents." In early 1975 the State, the County, and LILCO met to define the emergency planning roles and responsibilities of each body. This was the first of many sessions to support the development of the Suffolk County response plan.

In 1977 Mr. Norman Kelly, County Emergency Preparedness Director, was given overall responsibility for the offsite emergency plan, and the Suffolk County Department of Transportation was directed to develop an evacuation plan. After numerous working-level meetings and discussions between the County and LILCO, Suffolk County's "General Radiation Emergency Plan" was approved by County Executive John Klein on August 30, 1978. It was reviewed, and eventually accepted, by the New York State Office of Disaster Preparedness.

In late 1978 the Environmental Protection Agency and the Nuclear Regulatory Commission issued NUREG-0396. It recommended that emergency planning be expanded to address Class 9 accidents that might result in the need to take emergency action out to 10 miles from the plant. In response to NUREG-0396, LILCO and certain State and County officials began updating Shoreham's evacuation plan to provide for an emergency response out to 10 miles.

Following the accident at Three Mile Island in 1979, the NRC promulgated new emergency planning regulations (under which the County is now attempting to terminate the Shoreham proceeding). As a result, LILCO and County Executive John Klein signed a "Memorandum of Understanding" on December 28, 1979, outlining the revised responsibilities of the Company and the County in emergency planning. A cover letter to the Memorandum indicated that County Executive-elect Peter Cohalan had approved the terms of the agreement.

To respond to the extensive post-TMI changes in the NRC's emergency planning requirements, LILCO began discussions with private consulting firms early in 1980 with an eye toward hiring outside consultants to assist the County and LILCO in updating the existing plan. Throughout 1980 planning discussions with Suffolk County officials continued. County emergency planning personnel inspected the Shoreham site on February 28, 1980. LILCO met with 60 representatives of Suffolk County departments in March and submitted nine volumes of material to the County Legislature's Health Committee in conjunction with legislative hearings on nuclear power. The County continued discussions with private consulting firms. By fall, the County received a proposal to prepare a plan from EDS Nuclear Inc. Chief Deputy County Executive John Gallagher met with LILCO representatives in September and December to discuss the proposal.

In February 1981 the County concluded that it could develop the revised emergency response plan on its own, since County personnel had already worked on the original plan and were familiar with local conditions. LILCO Vice President Dr. Matthew C. Cordaro, Suffolk County Planning Department Director Dr. Lee Koppelman, and Mr. Gallagher signed a contract on March 15, 1981, calling for the County to produce a revised radiological response plan within six months at a cost of $245,000 to be paid by LILCO. The Suffolk County Legislature, however, rejected the initial contract because it had not been consulted on the terms. In September 1981 an amended contract with substantially the same terms was submitted to the County Legislature and accepted, and LILCO paid the Suffolk County Planning Department $150,000 as the first installment on the contract. The balance of the contract ($95,000) was due upon completion of the plan on March 18, 1982.

The contract is described as being between LILCO "and the County of Suffolk, acting through its Department of Planning." It further states that "[t]he DEPARTMENT represents that it has read and is familiar with the applicable Federal Regulations set forth in Exhibit B attached hereto and that the DEPARTMENT believes it can develop a County Radiological Emergency Response Plan which complies with such regulations." The scope of work includes preparing a draft and final County plan, integrating the plan with State and LILCO plans, developing implementing procedures, preparing and distributing public education materials, providing expert witness testimony concerning planning work, and training emergency planning personnel in coordination with the State and LILCO.

LILCO continued to cooperate with Suffolk County in preparing the offsite plan, exchanging and refining information from other nuclear plants on emergency planning, population figures, and meteorological data. Most of the sections of the plan were completed by February 1982. At that time County planners indicated they would need assistance on the Health Department section if they were to finish their work by March 18th. LILCO offered to obtain assistance from a consultant to complete that section of the plan.

C. The County's Change In Position

In mid-February 1982, a great change apparently occurred in the thinking of Suffolk County officials. On that date they announced the hiring of their present counsel in the licensing proceeding, and the very next day Dr. Koppelman sent a letter to Dr. Cordaro stating as follows:

> We wish to inform you that based on current evaluation we believe an apparent conflict of interest exists in accepting your funds for the preparation of the County's Radiological Emergency Response Plan. Accordingly, we will return the funds you advanced and will not call for any further funds.
>
> The County will continue, as required by law, to develop a plan consistent with the requirements of law and its obligation to protect the health, safety and welfare of the people.4/

4/ Dr. Matthew C. Cordaro responded in a letter to the County dated March 17, 1982, stating the following:

(footnote continued)

Press accounts quoted the County's new lead attorney as stating that emergency planning would be a "centerpiece" of the County's participation in the hearings.

Shortly thereafter, the Suffolk County Legislature adopted Resolution No. 262-1982, authorizing the County to hire certain consultants to prepare yet another emergency plan.

D. Suffolk County's Efforts To Produce a New Emergency Plan

After eight months' work, the County produced the draft Suffolk County Radiological Emergency Response Plan, dated November 1982 (draft County plan). It has two distinguishing features: (1) it provides for a 20-mile emergency planning

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(footnote continued)

> LILCO, however, has requested neither the return of the $150,000 paid to date nor the discharge of its obligation to make final payment. The Company is at a loss to understand why the County believes that acceptance of these payments constitutes a conflict of interest.
>
> LILCO is relying on the County to perform its obligations under this contract and will be damaged severely if the County fails to perform these obligations fully.

The County subsequently sent LILCO a check in the amount of $150,000. LILCO has not cashed it and regards the contract as still in effect.

zone for protective action taken on behalf of the population (including evacuation), and (2) it requires additional "development." As noted by the County in its draft plan, the further "development" includes such items as (a) implementing procedures; (b) written agreements with hospitals, relocation facilities, governmental agencies and the like; (c) training, exercises, and drills for emergency workers; (d) resolution of the question whether bus drivers, firemen, and other emergency workers will report for work during an emergency; (e) public education; and (f) integration with the State and LILCO plans. In short, the draft County plan is not a "plan" at all within a reasonable meaning of that word, and it contains very little if any information that is site-specific to Shoreham or Long Island. It is a generic blueprint, organized along the lines of NUREG-0654 and identifying the sorts of items one must develop to plan for an emergency at a nuclear power plant.

The Legislature's public hearings on the plan in January and February culminated in Suffolk County Resolution 1196-83, which provides that "no local radiological emergency plan for a serious nuclear accident at Shoreham will protect the health, safety, and welfare of Suffolk County residents." The resolution passed the Legislature 15 to 1, following brief consideration of reports from the special counsel to the Legislature, and Peter Cohalan, the Suffolk County Executive. Mr. Cohalan, abrogating the years of Suffolk County support for and acquiescence in constructing Shoreham (and his own approval of previous emergency planning efforts), stated publicly the day before the vote was taken that "there never can be emergency preparedness" for Shoreham and that "Shoreham should never operate."

E. LILCO's Continued Pursuit of Offsite Planning

While the preparation and later the Legislature's hearings on the draft County plan went forward, LILCO continued to develop the offsite plan begun by the County. Shortly after the County had abandoned that plan, LILCO had explored with the County the possibility of refining it and using it as an interim plan while the draft County plan was being developed. The County refused. Therefore, on April 29, 1982, LILCO met with New York State Commissioner of Health David Axelrod, and Disaster Preparedness Commission Chairman William Hennesey, and it was agreed that the offsite plan originally prepared by the County would be submitted to the State for review against emergency planning criteria.

LILCO submitted the plan on May 10 with a letter of transmittal specifically noting that Suffolk County did not endorse it.5/ It was reviewed by the State and returned to

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5/ LILCO has never asserted that this offsite plan is endorsed by the County. As indicated, (1) the plan was

(footnote continued)

LILCO with comments. LILCO responded to the comments, amended the plan, and resubmitted the plan to the DPC in the fall of 1982.

The DPC Staff subsequently determined that the plan satisfied State and Federal requirements. A hearing was scheduled for December 8th for the entire DPC to consider the LILCO-submitted offsite emergency plan; the County was invited. Rather than participate in the administrative process before the DPC, the County sought and obtained a temporary restraining order from New York State Supreme Court Justice Edward F. Conway on December 7th, precluding the DPC meeting until a preliminary injunction hearing could be held. On December 15 attorneys for Suffolk County, New York State, and LILCO met before New York State Supreme Court Justice Robert C. Williams and agreed upon a stipulation that provided that the DPC would refrain from further action on the LILCO-submitted plan until February 23, 1983. To date, the State has not acted upon the plan.

(footnote continued)

accompanied by a letter from Dr. Cordaro to the DPC expressly stating that the County had disavowed the plan, and (2) the Chief of the Suffolk County District Attorney's Special Investigation Unit, following an investigation urged upon him by the Suffolk County Executive and Legislature, found on November 17, 1982 that LILCO broke no State or local laws by submitting the plan to the DPC.

From the time that the County ceased work on the offsite plan, LILCO has continued its efforts to obtain the County's cooperation in emergency planning. For example, on June 17, 1982, LILCO Vice President Ira Freilicher met with Frank Jones, Deputy County Executive, in an attempt to explore ways for the County to proceed with emergency planning. On September 17, 1982, Dr. Cordaro wrote Mr. Gallagher that "we are willing to meet at any time and place you suggest with the County's consultants or emergency planning steering committee . . . ." Likewise, on August 7, 1982, LILCO's counsel wrote to counsel for the County suggesting that one or two LILCO representatives be made a part of the County's steering committee and stating that LILCO was ready to resume meetings with the County to coordinate the County's planning with LILCO. On September 29, 1982, Dr. Cordaro invited Mr. Jones to an informational meeting to discuss the distribution of tone alerts to special facilities in the vicinity of the plant. On October 4, 1982, Dr. Cordaro wrote Mr. Gallagher and said that "we are willing and anxious to cooperate with the County in this [emergency planning] endeavor."

On October 7, 1982, W. G. Schiffmacher, Manager of LILCO's Electrical Engineering Department, wrote to Mr. Jones describing the Shoreham Prompt Notification Siren System (as

Mr. Jones had requested) and asking permission to proceed with the installation of communications equipment at County facilities. On October 11, 1982, Dr. Cordaro wrote to Mr. Jones, asking permission and cooperation regarding some six items involving communications among emergency personnel and the public. And, in its statement filed with the Suffolk County Legislature on January 18, 1983, LILCO expressed hope that "there will be a renewed relationship of cooperation with the County on emergency planning as a result of LILCO's participation [in the Suffolk County Legislature's hearings]." Long Island Lighting Company's Presentation of the Legislature of Suffolk County on the November 1982 Draft Suffolk County Radiological Emergency Response Plan, dated January 14, 1983, at 27.

Unfortunately, current political wisdom in the Suffolk County Executive's office and the County Legislature seems to require County officials to ignore LILCO's proffer of cooperation.

F. Suffolk County Participation in The Licensing Proceeding

After abandoning in February, 1982, the almost-completed plan prepared by its planners, the County delayed consideration of offsite planning in the licensing proceeding (where they had raised an emergency contention) for almost a year, slipping the completion dates of its newest planning efforts from October 1, 1982 to October 18 to "the latter half of November." The plan ultimately emerged during the first week in December, and the County announced that public hearings on the plan were to be held the following January.

In response to the Licensing Board's inquiry with respect to extent to which the County was pursuing integrated planning with LILCO and the State, the County suggested that "harmonious integration can be attempted if consideration of all emergency planning issues were deferred until after the County's plan is developed" and that "integration is impossible, as a practical matter, in the atmosphere of contentiousness in which the parties must square off to contest 'Phase I' [onsite emergency planning] issues." That atmosphere, of course, stemmed from the County's own actions regarding emergency planning. This behavior culminated in the County refusing to proceed with cross-examination on onsite emergency planning issues, after focusing the parties' and the Board's attention on onsite emergency planning for months by conducting discovery, drafting contentions, filing written testimony, and preparing for cross-examination.

In addition, in the past year the County has raised thirty-seven sets of issues in the licensing proceeding, resulting in more than 28 weeks of hearings, 7,376 pages of prefiled testimony (4,719 of those by LILCO), and 20,344 pages of transcript. The County is now stepping forward after years of emergency planning efforts by LILCO and of costly litigation, and is suggesting that emergency planning regulations require the NRC to terminate consideration of the operating-license proceeding because the County now has concluded it no longer wishes to participate in offsite planning.

Reference 3

COST DATA
ON
EMERGENCY PREPAREDNESS

Emergency Planning - Costs

For this site, the owners have spent about 12 million dollars; of this sum, about 3 million was expanded in upgrading onsite facilities and equipment and the remainder for off-site needs. These funds were spent to meet the requirements of US NRC/FEMA NUREG 0654/REP-1, Revision 1. The 9 million dollars is distributed as follows:

		Millions
o	Alert and notification system (sirens and tone alerts)	5
o	State and local government emergency plans	2.3
o	State annual assessment	0.5 (2 yrs @ 0.25/yr)
o	Additional funds for requirements identified by FEMA	0.21
	- Funding of additional County personnel for public education	
	- Funding of County equipment	
	- Funding of County communications	
	- Funding County drill expenses	
-	Training of local government personnel	.285
-	Field monitoring equipment for local governments	.071
-	Thyro-block for local governments	.020
-	Exercise preparations	.150
-	Communications equipment (radio, telephone, telecopiers, computers)	.600
-	Emergency New Center	.050

Estimated annual operations and maintenance costs for sirens, tone alerts, telephones, computers, telecopiers, brochures, etc. is believed to be about $400,000.

Several local governments are revising or redrafting their plans; the impact of these efforts has yet to be defined. We anticipate funding requests for additional personnel and equipment.

STATE AND TOWN EMERGENCY PLANS*

All Costs in $1,000 Multiples

Includes Labor Costs

Utility Expenditures
For State and Local
Planning

ANNUAL OPERATING AND MAINTENANCE COSTS

Operation and Maintenance Expenditures	**	Actual 1980		Actual 1981		Actual 1982		Projected 1983		Projected 1984	
		1	2	1	2	1	2	1	2	1	2
1. DPUC Fund											
A) Initial		--	--	(1)	(1)	(1)	(1)	(1)	(1)	--	--
B) Annual		--	--	100	100	100	100	100	100	100	100
2. State & Local Emergency Plan Preparation and Updating		267	168	314	297	135	122	60	60	35	35
3. Public Alerting System(3)		--	--	--	--	106	69	200	200	200	200
4. Radiopager System(2)		--	--	19	21	18	12	15	15	15	15
5. Public Education Programs											
A) Public Information Booklet				5	5	93	121	40	60	40	60
B) Public Opinion Surveys		--	--	--	--	--	--	50	50	50	50
6. State & Local Training/ Drills/Exercises		--	--	112	113	299	242	250	240	250	240

NOTES

(1) $1,000,000 per site amortized over 1981, 1982 and 1983
(2) Only 33% of total charged to state and local planning
(3) For six months only in 1982

*Does not include one time construction costs for Public Alerting System.

** 1 - Site 1

2 - Site 2

From: James M. Thomas' paper, "No Free Lunch - The High Cost of Emergency Planning" given at the EPRI/NSAC Workshop, "Are Current Emergency Planning Requirements Justified," January 12/13, 1982

ATTACHMENT 1

Planning and Exercise Costs for Washington State 1974-1981

Year	Plan(s)	Exercise(s)
1974		
Cowlitz County	$5,000	-0-
State	3,500	-0-
	$8,500	-0-
1975		
Cowlitz County	$2,000	$15,000
Benton County	6,500	-0-
Franklin County	3,000	-0-
State*	25,000	$30,000
	$36,000	$45,000
1976		
Cowlitz County	$1,000	$16,500
Benton County	7,000	-0-
Franklin County	2,000	-0-
State*	20,000	30,000
	$30,000	$46,500
1977		
Cowlitz County	$1,000	$16,000
Benton County	500	-0-
Franklin County	-0-	-0-
State*	500	30,000
	$2,000	$46,000
1978		
Cowlitz County	$500	$15,000
Benton County	500	-0-
Franklin County	-0-	-0-
State*	500	25,000
	$1,500	$40,000

Year	Plan(s)	Exercise(s)
1979		
Cowlitz County**	$2,000	$20,000
Benton County	500	-0-
Franklin County	-0-	-0-
State*	8,000	35,000
	$10,500	$55,000
1980		
Cowlitz County**	$60,000	-0-
Benton County	2,000	-0-
Franklin County	500	-0-
Grays Harbor County	10,000	-0-
State*	240,000	$20,000
	$312,500	$20,000
1981		
Cowlitz County**	$40,000	$50,000
Benton County**	10,000	-0-
Franklin County**	2,000	-0-
Grays Harbor County**	15,000	-0-
Mason County**	500	-0-
State*	$230,000	$130,000
	$297,500	$180,000

*Costs include all state agencies' planning and exercise expenses. Sources of funds include federal grants, state government revenues, and moneys from utilities.

**Costs include exepenses of all county and municipal agencies. No value has been attached to volunteer time. Sources of funds include local government revenues, federal grants and moneys from utilities.

NOTE: These figures are conservative. The true costs are probably higher and may never be known.

Results of An Information
Request on the Cost of Emergency Preparedness
September, 1982
(Dollars)

Response	Notification & Warning Systems	Annual Mandatory Assessment	Costs of Drills & Exercises
1	700,000	180,000	113,000
2	300,000	35,000	150,000
3	1,000,000	600,000	State Budget
4	335,000	50,000	200,000
5	2,000,000	Pending	200,000
6	1,000,000	Three utilities 500,000/yr.	100,000
7	1,000,000	300,000	200,000
8	800,000	115,000	250,000
9	380,000	N/A	--
10	300,000	200,000/ 250,000	75,000
11	300,000	100,000	--
12	1,000,000	N/A	--

ADDITIONAL DATA
COLLECTED IN
APRIL, 1983

EMERGENCY PREPAREDNESS DATA SHEET

Annual Mandatory State Legislative Assessment

1977 0

1978 0

1979 0

1980 $203,000

1981 $327,000

1982 $250,000

1983 $250,000

Projected 1984 $400,000

Annual Fees to County/local

1977

1978 Annual fees to county

1979 And local Agencies included

1980 in figures Above

1981

1982

1983

1984

Cost of Early Warning Systems

$1,600,000

Projected Annual Maintenance Cost for Early Warning Systems

$125,000

Cost of a Drill or Exercise Cost of 1982 drill - $87,000

EMERGENCY PREPAREDNESS DATA SHEET

Annual Mandatory State Legislative Assessment

1977 0

1978 0

1979 0

1980 0

1981 $1,100,000

1982 100,000

1983 100,000

Projected 1984 100,000

Annual Fees to County/local

1977

1978

1979

1980 No annual fee. However, the utility

1981 spent $716,000 for writing 19

1982 local community emergency plans, plus

1983 the State Plan

1984

Cost of Early Warning Systems

Projected to completion $3,614,000 (Actual to date $2,754,000)

Projected Annual Maintenance Cost for Early Warning Systems

$200,000

Cost of a Drill or Exercise $250,000 (Includes Annual Training Costs)

EMERGENCY PREPAREDNESS DATA SHEET

Annual Mandatory State Legislative Assessment

1977 0

1978 0

1979 0

1980 0

1981 $1,100,000

1982 100,000

1983 100,000

Projected 1984 100,000

Annual Fees to County/local

1977

1978

1979 No annual fee. However, spent

1980 $587,000 writing 10 local emergency

1981 plans, plus the State Emergency Plan

1982

1983

1984

Cost of Early Warning Systems

Projected to completion $2,744,000 (Actual to date $1,824,000)

Projected Annual Maintenance Cost for Early Warning Systems

$200,000

Cost of a Drill or Exercise $240,000 including annual training costs

EMERGENCY PREPAREDNESS DATA SHEET

Annual Mandatory State Legislative Assessment (Two States)

1977 0

1978 0

1979 0

1980 0

1981 0

1982 $1,050,000

1983 $1,050,000

Projected 1984 $1,050,000 plus

Annual Fees to County/local

1977

1978 Spent more than $3,000,000

1979 assisting two States and local

1980 agencies in developing plans

1981 and providing hardware

1982

1983

1984

Cost of Early Warning Systems

$400,000

Projected Annual Maintenance Cost for Early Warning Systems

—

Cost of a Drill or Exercise $150,000 to $250,000

Development of Scenerio Alone cost $50,000 to $70,000

EMERGENCY PREPAREDNESS DATA SHEET

Annual Mandatory State Legislative Assessment

1977
1978 No mandatory state assessment in 1982.
1979 Four utilities agreed to a one-time
1980 payment directly to the State totally
1981 $500,000.
1982
1983
Projected 1984

Annual Fees to County/local

1977
1978 No annual fee - utility paying
1979 costs for drill, annual training
1980 and some minor equipment. Total
1981 not expected to exceed $18,000.
1982
1983
1984

Cost of Early Warning Systems

$800,000

Projected Annual Maintenance Cost for Early Warning Systems

$10,000

Cost of a Drill or Exercise $33,000

EMERGENCY PREPAREDNESS DATA SHEET

Annual Mandatory State Legislative Assessment

1977 __________
1978 __________
1979 __________
1980 None to date
1981 __________
1982 __________
1983 __________
Projected 1984 __________

Annual Fees to County/local

1977	State 1	State 2
1978	0	0
1979	20,000	36,000
1980	725,000	270,000
1981	750,000	420,000
1982	750,000	100,000
1983	750,000	200,000
1984 (Projected)	500,000	200,000

Cost of Early Warning Systems

Site 1 (34 sirens) ~ 600,000; Site 2 (52 sirens) ~$1,100,000 Site 3 (66 sirens) ~ $1,000,000

Projected Annual Maintenance Cost for Early Warning Systems

Site 1 ~ $60,000; Site 2 ~ $108,000; Site 3 ~ $75,000

Cost of a Drill or Exercise $100,000 to $150,000 total per exercise

EMERGENCY PREPAREDNESS DATA SHEET

Annual Mandatory State Legislative Assessment

1977 0

1978 0

1979 0

1980 0

1981 —

1982 June,'81 - May, 1982 $55,000

1983 June, 1982 - May, 1983 $32,500

Projected 1984 $50,000

Annual Fees to County/local

1977

1978

1979 None until 1983

1980

1981

1982

1983 June, 1983 to May, 1984 $10,000

1984

Cost of Early Warning Systems

$750,000

Projected Annual Maintenance Cost for Early Warning Systems

$10,000

Cost of a Drill or Exercise $100,000 per exercise

EMERGENCY PREPAREDNESS DATA SHEET

Annual ~~Mandatory~~ State Legislative Assessment

1977			
1978	None prior to 1981		
1979	State #1	State #2	State #3
1980			
1981	$205,000		
1982	$250,000	$282,000	
1983	$250,000	$250,000	$50,000
Projected 1984	$250,000	$125,000	$50,000

Annual Fees to ~~County~~/local

1977

1978

1979

1980

1981 $45,000

1982 $30,500

1983 $15,000

1984 $15,000

Cost of Early Warning Systems

$625,000

Projected Annual Maintenance Cost for Early Warning Systems

$65,000

Cost of a Drill or Exercise $50,000

EMERGENCY PREPAREDNESS DATA SHEET

Annual ~~Mandatory~~ State Legislative Assessment

1977 ________

1978 ________

1979 ________

1980 ________

1981 $20,000

1982 $20,000

1983 $85,000

Projected 1984 $65,000

Annual Fees to ~~County~~/local

1977 ________

1978 ________

1979 ________

1980 ________

1981 $40,500

1982 $25,900

1983 $25,000

1984 $25,000

Cost of Early Warning Systems

$415,000

Projected Annual Maintenance Cost for Early Warning Systems

$60,000

Cost of a Drill or Exercise $50,000

COMPILATION OF STATE LAWS REGARDING THE FUNDING OF NUCLEAR EMERGENCY PREPAREDNESS AND RESPONSE PROGRAMS

August 11, 1982

Compiled by:

Sherry Haber

State Governmental Affairs Manager

INFO
Atomic Industrial Forum, Inc.
Public Affairs and
Information Program

LAWS ENACTED

Arizona

HB-2171 appropriates $125,000 from the state's general fund for personnel, equipment, and other services necessary for the development of an emergency response plan. (1980)

HB-2466 requires the Legislature to levy an annual assessment on "commercial nuclear generating stations" to provide for the development and maintenance of a state plan for off-site response to an emergency caused by an accident at these stations and to provide for the equipment, personnel, facilities, training and testing necessary to comply with criteria for preparation and evaluation of emergency response plans and preparedness as prescribed by the NRC and FEMA. Before October 31 of each year, the Director of the Division of Emergency Services will recommend to the Legislature an amount necessary to develop, maintain and support the state plan and the Legislature can approve, reject or modify that amount. The Legislature will appropriate the necessary amount, by separate appropriation bills, and the assessment on the "commercial nuclear generating stations" will be equal to that amount. (1981)

HB-2357 appropriates $547,000 from the state's general fund to the Nuclear Emergency Management Fund and assesses the same amount against each consortium constructing a commercial nuclear power plant in the state. An additional $100,000 is appropriated from the state's general fund for the purpose of constructing an emergency management center. (1982)

Arkansas

SB-32 creates the "Arkansas Nuclear Planning and Response Fund to be used exclusively for the operation and maintenance of the state nuclear planning and response program. The program, which is to be carried out by the state Department of Health and the Bureau of Environmental Services, is to include continuous environmental surveillance in the area of any nuclear power plant, the training and education of persons residing in these areas regarding nuclear hazards and protective measures to be taken in the event of an accident, a plan for immediate emergency response capability, and the dissemination of information to the public pertaining to radiation hazards, protective measures, evacuation procedures and other appropriate actions. The fund is to consist of annual fees levied against each utility in the state that operates one or more nuclear power plants. The amount of the fees will be determined each year by the Chief Fiscal Officer based on an approximation of the money needed to operate and maintain the planning and response program. However, the amount cannot exceed the total amounts appropriated for the program by the General Assembly for the particular year. The Chief Fiscal Officer is also directed to apportion the fees to the utility or utilities in the state operating nuclear power plants in proportions that are determined to be appropriate and equitable. Payment must be remitted to the Chief Fiscal Officer within 30 days after the amount is certified to the utility(ies). (1980)

California

SB-1183 ordered a study to be conducted by the Office of Emergency Services (in consultation with the state Department of Health Services and affected counties) of the consequences of a serious accident at the Diablo Canyon, Humboldt Bay, Rancho Seco and San Onofre nuclear power stations. The study which was to be completed by March, 1980 was to include site-specific maps showing the areas likely to be affected and emergency planning zones which reflect inhalation, ingestion and other radiation pathways. In addition, similar studies are to be made in the future for any new nuclear power plants proposed in the state. Based on information derived from the study, the Office of Emergency Services was directed to revise its emergency response plan within six months of the study's completion and to assist local officials in revising their plans as well. All state and local costs not reimbursed by federal funds are to be borne by the appropriate utilities with the Public Utilities Commission being responsible for developing an equitable method of assessing the utilities for their pro rata share of the state agency costs; local agency costs are to be submitted by the local agencies according to requirements established by the Office of Emergency Services. In order to fund initial planning costs, the state assessed each nuclear power plant operator $25,000. All fees collected under this section are deposited in a Nuclear Planning Assessment Special Account and at no time can the nuclear power plant operators be assessed more than $2-million for reimbursement of state costs. This section of the state code will be repealed on January 1, 1983 unless a new statute is enacted by January 1, 1983. If the section is repealed, all funds remaining in the special account will be refunded pro rata to the contributing power plant operators. (1979)

SB-1184 requires each public or private utility operating a nuclear power plant of 50 megawatts or more to install off-site radiation detection devices that will simultaneously transmit information to the Office of Emergency Service's Warning Center. The power plant operators will not be required to spend more than $1-million in capital outlay in order to meet this requirement. Each utility is also required to install an automated alert system that will activate alarms in the Warning Center. The alert system must duplicate the operation of the emergency core cooling system and the high radiation alarm of the radioactive gas effluent stack monitor. The ceiling on the cost for implementing this requirement is set at $200,000. Costs for establishing the monitoring devices and the alert system are allowed for rate-making purposes. (1980)

Connecticut

SB-1419 establishes a Nuclear Safety Emergency Preparedness Fund which is to consist of assessments against all NRC licensees operating nuclear power plants in the state. The licensees will be assessed a total of $2-million initially and $200,000 annually; all assessments will be allowed for rate-making purposes. Monies deposited in the fund will be expended by the Director of the Office of Civil Preparedness in conjunction with the Commissioner of Environmental Protection solely to support the activities of a nuclear safety emergency preparedness program and only in accordance with a plan approved by the Secretary of the Office of Policy and Management. The program will include, but not be limited to 1) development of a detailed fixed facility nuclear response plan for areas surrounding each nuclear power plant and each away-from-reactor spent fuel storage facility; 2) annual training of state and local emergency response personnel; 3) development of accident scenarios and exercising of fixed facility nuclear emergency response plans; 4) provision of necessary specialized response equipment; and 5) any other measures required by the NRC and FEMA. When disbursing the fund the Director may not use more than 10% of the annual assessments for his purposes; the rest may be allocated to other state agencies and used to reimburse municipalities for costs incurred in purchasing and maintaining equipment and for services rendered. The state Department of Utility Control may allow an additional assessment of the licensees if either the NRC or FEMA disapproves or informs the Director, in writing, of intent to disapprove the emergency preparedness plan and additional funds are needed to bring the plan up to standards. (1981)

Delaware

SB-427 authorizes and directs the state Division of Emergency Planning and Operations of the state Department of Public Safety to develop and maintain a state radiological emergency plan. In order to defray the expenses associated with implementing this plan, the Division is authorized to enter into contracts and to apply for, accept and expend funds from public or private sources. These funds will be placed in a special segregated account for the designated use of the Division. (1982)

Florida

HB-1066 requires operators of nuclear power plants in the state to fund the development, preparation, testing and implementation of radiological emergency response plans at a level necessary to meet the needs of the counties; when necessary, the operators may enter into bilateral agreements with state agencies or appropriate counties. The state (via the Secretary of Veteran and Community Affairs) will be responsible for approving the annual budget for the counties. (1982)

Illinois

HB-2496 amends the "Illinois Nuclear Safety Preparedness Act" (enacted September 1979) by providing for an increase in certain fees assessed against owners of nuclear power plants and away-from-reactor spent fuel storage facilities. These fees are used to support the activities required to implement the state's Nuclear Safety Preparedness Program, including 1) provision of a remote effluent monitoring system; 2) development of a detailed fixed facility nuclear emergency response plan for areas surrounding each nuclear power plant and away-from-reactor facility; 3) training of state and local emergency response personnel; 4) development of accident scenarios and exercising of fixed facility nuclear emergency response plans; and 5) provision of specialized response equipment. The new fee schedule increases

1) the one-time charge against each nuclear power plant from $350,000 to $590,000 and, in effect, makes this retroactive by providing for an additional charge of $240,000 per nuclear power plant for which the one-time fee has already been paid; 2) the annual fee from $75,000 to $180,000 per nuclear power plant after June 30, 1982; and 3) the fee for spent fuel shipments from $1,000 per shipment to $1,000 per cask for truck shipments and $2,000 per cask for all rail shipments. An annual fee of $25,000 per away-from-reactor spent fuel storage facility, to be paid by the facility owner remains the same as established by the 1979 act (SB-1084). For plants already operating when the 1979 act went into effect or that were scheduled to go into operation by January 1, 1982, the one-time fee was to be paid within 90 days of the original act's effective date; the increase must be paid within 90 days of the effective date of this amendatory act (9/82). As per the original act, all subsequent plants proposed in the state will be required to pay the one-time fee at least two years prior to scheduled commercial operation. All annual fees must be paid within 30 days after the beginning of each fiscal year. And, the fee for shipments of spent nuclear fuel must be paid prior to receipt of each shipment. All monies will be deposited in a "Nuclear Safety Emergency Preparedness Fund" and will be expended only by the Director of the state Department of Nuclear Safety to support the activities of the state's emergency preparedness program. Finally, any equipment that is purchased by the Department for installation on the premises of a nuclear power plant or spent fuel storage facility must be installed by the owner of the facility under the direction and supervision of, and at no cost to, the Department. (1982; amends SB-1084 which was passed in 1979)

Maine

LD-16[illegible] creates a Radiological Emergency Preparedness Committee to prepare and annually review an emergency radiological response plan that is to include evacuation plans as well as the requirements for such programs that are established by the FEMA and the NRC. This legislation also creates a Nuclear Emergency Planning Fund which will consist of appropriations from the state's general fund in the amount of $75,000 for the fiscal year 1981-82 and $50,000 for 1982-83. This fund will be used for the preparation and implementation of emergency planning for nuclear power plants and related fuel-cycle activities. Expenditures, which will be authorized by the state Controller, as approved by the Committee, will be limited to support of state agency activities, grants to counties or municipalities or interjurisdictional or regional civil emergency agencies and contractual services. The fund will be limited to $250,000 and disbursements must not exceed $50,000 per year except in the event of an actual emergency. (1981)

Michigan

SCR-5[illegible] [illegible] $300,000 for expenditure by the state Department of Health for the implementation of a nuclear emergency planning and response progr[illegible] [illegible] Service Commission is directed to recover the costs associated with the program through utility assessments. (1980)

Minnesota

HF-1842 assesses a fee of $250,000 against any person, firm, corporation or association that owns or operates a nuclear power plant in the state for the purpose of financing the initial cost of upgrading nuclear power plant emergency response plans and other programs necessary to deal with incidents resulting from the plant's operation. This includes (but is not limited to) 1) the purchase of equipment for state and local units of government, including public warning systems, protective devices and communications systems such as brochures, pamphlets and education programs; 2) the development of a detailed nuclear emergency response plan for areas surrounding each nuclear power plant; 3) the training of state and local emergency response personnel; 4) the development of accident scenarios and exercises for nuclear emergency response plans; and 5) the provision of any other specialized response equipment . An appropriation of $500,000 is also made to the Department of Public Safety from the state's general fund for the purpose of developing state and local emergency response plans and for a study which includes an analysis of existing emergency planning zones and the need for modification or extension, changes in land use regulation near plant sites, the capacity of state and local agencies to deal with nuclear power plant emergencies, the scope of federal assistance during an emergency, the scope and coverage of utility insurance programs, a review of the state's role in emergency planning, an evaluation of remote monitoring and notification systems used or planned for use in other states, and an evaluation and recommendations for the adjustment of annual assessment fees against the owners of the nuclear power plants. The report was to be submitted to the Legislature by February 1, 1981. (1980)

New Hampshire

HB-464 establishes the New Hampshire Emergency Response Fund which will be administered by the Public Utilities Commission to pay the costs of developing, testing and implementing emergency response plans for the Seabrook nuclear power station. The fund will consist of assessments against each utility in the state that has either applied for an operating license or is already operating a nuclear power plant; assessments cannot be charged to the normal operating costs of any company before the issuance of an operating license. The annual assessment will be determined by the chairman of the Public Utilities Commission based upon the emergency response budgets submitted each year by the municipalities. The utility will be billed for the assessment each year by the state Treasurer and will be required to submit payment within 30 days after receipt of the bill. (1981)

New Jersey

AB-1272 authorizes any municipality in which a nuclear power plant is located to appropriate and grant up to $250,000 annually to counties and other municipalities that would be affected by an emergency at the plant for the purpose of preparing, testing and implementing nuclear emergency response plans. (1979)

AB-966 assesses an annual fee against each electric utility that has an ownership or operating interest in a nuclear facility in the state to defray the expenses of local, county and state agencies in discharging their responsibilities relating to emergency planning and response. These include the costs associated with the development, testing and updating of the state emergency radiation response plans and for the acquisition and maintenance of any necessary equipment. The total amount to be assessed to any particular utility will be determined annually by the state Treasurer but cannot exceed .1 of one percent of the gross electric operating revenue subject to assessment of the utility derived from its intrastate electric operations during the preceding calendar year. The assessment will be levied by the Treasurer no later than July 1 and must be paid within 30 days after mailing notice to the affected utility. (1981)

Note: A spokesperson from Public Service Gas & Electric Company said that, based on this year's gross revenue figures, implementation of AB-966 would cost the electric utilities in the state a combined total of approximately $4-million.

New York

SB-7122 provides for an annual assessment of up to $250,000 (the specific amount will be determined by the Public Service Commission) against any person licensed by the NRC to operate a nuclear power plant in the state. The assessment will be used to support state and local governmental responsibilities under accepted radiological emergency preparedness plans related to the licensee's plant. These include 1) the purchase, installation, maintenance and operation of radiation monitoring equipment used by the Commission and local governments; 2) the purchase, storage and distribution of equipment, drugs, etc. by the Public Service Commission for the purpose of protecting the public health and safety; 3) personal service, administrative costs and contractual services; and 4) emergency services personnel training. (1981)

North Carolina

SB-577 requires every person, firm, corporation or municipality that is licensed to construct or is operating a fixed nuclear power facility to pay an annual assessment of $30,000 for each facility. The fee will be used to assist in or partially defray the costs of planning and implementing emergency response activities as required by FEMA. The fee, which must be paid by July 1 of each year, may be increased as the costs of planning and implementation increase, but the increase will be by agreement between the state and the licensees or operators of the fixed nuclear facilities. It also appropriates $90,000 for fiscal years 1981 and 1982-83 from the state's general fund to the state Department of Crime Control and Public Safety. The funds will be used for hiring personnel and for equipment, supplies and clerical help for planning and implementing the emergency response activities. (1981)

Oregon

SB-641 assesses an annual fee of up to $100,000 against each operator of a nuclear power plant in the state to defray the costs of the state Department of Energy and the counties related to the preparation of a state radiological emergency plan. (1979)

Texas

SB-480 authorizes the state Radiation Control Agency to prescribe and collect an annual fee from the operator of each nuclear reactor or other fixed nuclear facility in the state that utilizes special nuclear material. The amount of the fees collected may not exceed the actual expenses arising from emergency planning and implementation and environmental surveillance activities. The annual fees collected will be deposited in the General Revenue Fund. (1981)

Virginia

HB-18 assesses fees against owners of nuclear power plants operating in the state in order to cover the cost of establishing and maintaining the emergency plans, programs and capabilities required to deal with the possibility of nuclear accidents. The fee schedule includes 1) a one-time charge of $55,000 per nuclear power plant, and 2) an annual fee of $85,000 (this amount will be adjusted each year to reflect increases in program costs) per nuclear power plant with an operating license from the NRC. The annual fee must be paid within 30 days after the beginning of each fiscal year. For facilities which have already begun commercial operation, the one-time fee was to have been paid within 90 days of the effective date of this chapter (10/82). For new facilities, the one-time fee must be paid at least one year prior to commercial operation. (1982)

PENDING LEGISLATION

Massachusetts

HB-2399 authorizes the assessment of "reasonable charges" against operators of nuclear power plants in the state to support the development and operation of preparedness and response plans within "nuclear power plant areas." The revenues will be returned under an "equitable formula" to the cities and towns in each area.

HB-2783 authorizes the assessment of "reasonable user charges and taxes" against operators of nuclear reactors or processing facilities in the state to support the development and operation of a state radiation monitoring program. These taxes or user charges must be borne by the utility and cannot be passed on to the consumer through rates.

New York

AB-11901 amends the "Executive Law" in relation to radiological emergency preparedness. In doing so, it raises the ceiling of the annual assessment against each nuclear generating facility from $250,000 to $950,000 for 1982-83 and $500,000 for all subsequent years. Additional amendments are made in regards to off-site radiation monitoring and adds several items to be incorporated into the radiological emergency preparedness plan.

Ohio

HB-61 requires the Board of County Commissioners of a county situated within a ten-mile radius of a nuclear power plant to adopt a civil defense plan for radiation accidents using guidelines published by the NRC. Each year the Board must submit an estimate of the amount of money the county will require during the following year to prepare, update, or execute its approved civil defense plan. The Director of the state Disaster Services Agency will review the estimate and return it to the Board with comments. The Board will then determine the amount of money needed and certify the amount to the nuclear power plant operator. The operator must then pay the amount to the county treasurer on or before the following January 1.

Pennsylvania

HB-450 assesses fees against persons engaged in the production of electricity utilizing nuclear energy, the operation of away-from-reactor spent fuel storage facilities, the shipping of spent nuclear fuel, and the fabrication of nuclear material in order to cover the cost of establishing emergency plans to deal with nuclear accidents. The fees will be used by the Pennsylvania Emergency Management Agency for 1) the purchase, installation, operation and maintenance of equipment to provide an early warning capability to detect nuclear accidents; 2) the establishment and maintenance of plans prepared by the Agency or other state agencies or municipalities; 3) the compensation and expenses of the state's nuclear engineers; 4) the purchase of protective and emergency equipment and medical supplies, including potassium iodide, the conduct of research associated with protective and health measures, and the granting of funds to municipalities to carry out their responsibilities. The fees are as follows: 1) an annual fee of $100,000 per nuclear power reactor with a construction permit or operating license, to be paid by the owners; 2) an annual fee of $50,000 per away-from-reactor spent fuel or nuclear material storage site, to be paid by the owners; 3) an annual fee of $50,000 per each facility involved in nuclear material fabrication, to be paid by the owners; and 4) $2,000 per shipment of spent nuclear fuel to be paid by the shipper. The fees must be paid within 30 days after the beginning of each fiscal year with the exception of those associated with the shipment of spent nuclear fuel. These will be paid prior to each shipment.

HB-2216 is similar to HB-450 except that it provides for an additional one-time fee of $350,000 per reactor, to be paid by the owner. This fee must be paid to the Agency at least three years prior to the scheduled commencement of commercial operation. For plants already in operation or that were scheduled to begin operation before January 1, 1982, the fee must be paid within 90 days of the effective date of this chapter.

Reference 4

INSTITUTIONAL
EXAMPLES (PROBLEMS)

Institutional Examples (Problems)

Example #1 Bordering states use different criteria for sounding their prompt notification systems (sirens and emergency broadcast system (EBS). Therefore, citizens on both sides of the state line hear sirens throughout the exercise leading to uncertainty and confusion. EBS instructions are also different. Resolution appears doubtful.

Example #2 There are multiple FEMA regions within the 10 mile EPZ. The FEMA regional districts border at the state line which splits the EPZ in two. Different FEMA regions evaluate the state and local emergency plans and judge the exercises with differing emphasis on the criteria. Also, differences in the state plans are made more difficult to resolve. There is no hope for change unless FEMA lets one region, the one with the plant, evaluate all plans and exercises within the 10/50 mile EPZ, irrespective of the FEMA regions impacted.

Example #3 A local governmental unit resists signing a letter unless certain financial agreements are reached. The costs could be $150,000 or more if applied statewide. The local unit has continued to participate in drills and exercises, even though they have threatened not to.

Example #4 Two bordering states in the 10 mile EPZ have adopted different protective action guides (PAG). One state chose the lower PAG for whole body and thyroid exposure; the other state chose the upper PAG. Weeks of additional planning time is required to devise a scenario that results in an event that permits each state to test it's emergency plan. Often the exercise contains more confusing elements than others involving only one state. There will be no change unless concerted action is forthcoming to bring about uniformity.

Example #5 The State participated as an interested party in the licensing hearing for an operating license and requested that a license not be granted unless the licensee provide dosimetry for emergency personnel at the State, County and local level. This cost the applicant approximately $196,000 with an annual commitment cost of $13,000 per year for the life of the plant.

Example #6 The licensee was involved with two States in two separate FEMA regions. The total cost of pulling the entire program together and getting the necessary approvals was approximately $3,000,000. This included $600,000 for a radiation monitoring system (ring system) around the plant.

Example #7 A letter was sent from a Board of County Commissioners to the NRC enclosing a resolution and requesting the NRC and FEMA require the applicant to commit to pay certain costs for additional facilities. The facilities included a bridge, a new central communication center and a fire station. The bridge alone would have cost several million dollars.

Example #8 During an ASLB hearing on emergency planning the Board concluded that FEMA "fails to fill" a gap in the evidentiary record. The burden was then placed on the applicant - "Applicants have one month from the date of issuance of this decision to file evidence demonstrating ···" (See Attachment E-1).

Example #9 During an ASLB hearing on emergency planning, the Board made the following points in their general considerations;

- "Offsite emergency planning issues are crucial to the granting of this operating license. Yet they are issues over which these applicants have little, if any, direct control."

- "We mean no criticism of Applicants' witnesses on this score. We fully recognize that while they have a very real interest in these issues, they have no direct control over them and consequently were not in a position to address the issues in the detail in which they were presented."

- "Given this situation, this Board is appalled by the inability of FEMA to respond to the contentions. These citizens deserve far better from the government agency with responsibility to protect them than they have received."

Example #10 FEMA Region IX submitted on February 15, 1983 clarification, or a definition, of Regional policy to assure that all parties are aware of their procedures and policies. As stated in their memorandum of August 9, 1982, FEMA "Region IX expanded and modified this guidance (NUREG-0654/FEMA REP-1) herein to facilitate timely handling of exercise actions and meet the specific demands of our evaluation process." (emphasis added) (See Attachment E-2). There is no indication that FEMA, National is aware of Region IX's positions. Continuity is not assured.

ATOMIC SAFETY & LICENSING BOARD DECISION

Note

The testimony of of the Federal Emergency Management Agency fails to fill this gap in our evidentiary record. Although Mr. testifies that "local officials and school officials are trained," he does not specify how many require training and what percentage have been trained. Hence, we have no testimony about who must be trained, and applicant has not shown that the emergency plan, by whomever implemented, meets the evaluation criteria of NUREG-0654.

We conclude that applicant has failed to meet the burden of proof concerning the adequacy of the radiological training program for local officials and school officials. (Although we have attempted to read the emergency plan to ascertain this information, nothing in that plan has been brought to our attention by applicant's or staff's Findings and we have not found anything that fills the gap we have identified.

In light of our findings concerning transportation for individuals without vehicles, including transportation of invalids and schoolchildren, we retain jurisdiction over this issue. Applicants have one month from the date of issuance of this decision to file evidence demonstrating that effective steps have been or are being taken to estimate the need for transportation of residents and transients who lack personal transportation and to provide reasonable means for emergency relocation of those individuals. In the alternative, applicant may demonstrate that the deficiencies are not serious or that adequate interim compensating actions will be taken. 10 CFR §50.54 (s)(2)(ii).

Note

Attachment E-2

Federal Emergency Management Agency
Region IX 211 Main Street, Room 220 San Francisco, CA 94105

August 9, 1982

MEMORANDUM FOR: ALL UTILITIES, STATES AND LOCAL OFFSITE EMERGENCY RESPONSE AGENCIES

FROM: THOMAS F. BRINTON, CHAIRMAN
RADIOLOGICAL ASSISTANCE COMMITTEE

SUBJECT: REGIONAL EXERCISE PROCEDURES

The current exercise and drill requirements and their frequency as identified by NUREG 0654/FEMA REP-1 necessitates standardization of exercise setup and clarification of procedure to simplify the total process. As a result, Attachments A and B are provided as guidance and format for exercise and drill development. Attachments C and D reflect an outline of the Meeting Schedule and a desired schedule of the drill/exercise week respectively.

Note

Offsite drill exercise requirements are cited in NUREG 0654/FEMA REP-1 and general policy is outlined in FEMA GM 17. Region IX expanded and modified this guidance herein to facilitate timely handling of exercise actions and meet the specific demands of our evaluation process. NRC Region V and FEMA Region IX exercise guidance regarding scheduling are complimentary in that meeting FEMA Region IX schedules assures meeting NRC Region V schedules. Meetings will be held with controller personnel at a frequency cited in Attachment C to assure ample time for all parties to prepare for such drill/exercises. FEMA Region IX may suggest, upon coordination with all participants, omitting meetings not deemed necessary for execution of the contemplated drill/exercise. It will be the responsibility of the exercise participants to assure schedules, scenarios, extents of play, and other related planning information incident to the drill/exercise are submitted to Region IX.

Development of an annual "Advance Drill Exercise Schedule" is highly recommended and will aid in timely handling of such activities. Strict adherence to predetermined dates is imperative to scheduling and conduct of such activities.

Attachments

cc: RAC Members

REP Memo Series: #2

Federal Emergency Management Agency
Region IX Building 105
Presidio of San Francisco, CA 94129

FEB 15 1983

MEMORANDUM FOR: All Federal Emergency Management Agency, Region IX Offsite Emergency Response Organizations

FROM: Robert L. Vickers, Regional Director
Region IX

SUBJECT: Region IX REP Memo Series

After three years working with the REP program, we have determined certain areas of the program require further clarification, or a definition of Regional policy is necessary to assure all parties are aware of our procedures and policies. As a result, please find the initial distribution of our Region IX REP Memo Series for your review and use. We will be distributing further memos within this series in the near future and encourage each party to retain these memos in a loose leaf binder for ease of handling. An index will be included with each distribution so that you may ensure the currency of these memos. Any changes or revisions will reflect a statement thereto to avoid confusion. We hope that this series will further the timely and efficient handling of REP issues and events. Any questions should be referred to the RAC Chairman, Federal Emergency Management Agency, Region IX, (415) 556-9840.

Attachments: Index
Memo Series: #1 through #10

RECEIVED
FEB 16 1983
OFFICE OF GENERAL MANAGER

Federal Emergency Management Agency
Region IX Building 105
Presidio of San Francisco, CA 94129

February 1, 1983

MEMORANDUM FOR: ALL OFFSITE EMERGENCY RESPONSE ORGANIZATIONS

FROM: FEMA REGION IX ~~RAC CHAIRMAN~~ Director

SUBJECT: FEMA Region IX Communication Requirements for EOF Operation

In accordance with NUREG 0696, paragraphs 4.1, 4.4, and 4.6, FEMA Region IX has determined its communication requirements in order to support EOF and general emergency response.

In the event of a major accident at a nuclear power plant, FEMA Region IX would dispatch a radio communications package with an operator to the EOF. This package consists of a high frequency single-side band radio transceiver and a complete very high frequency radio kit. This equipment would be used to support FEMA personnel. For this equipment to operate properly, FEMA requirements necessitate the following items be installed in the EOF.

From All regions?

1. A communications area of 6 x 8 feet located in the FEMA designated space.

2. One (1) table 8 x 2½ feet with 8 A.C. power outlets (total 30 amp service) to be used for communications equipment use. (Can be bar or 2-dual duplex receptacles.)

3. Two (2) dedicated single line instruments to be used for the radio-telephone interconnections.

4. Three (3) coaxial antenna cables with UHF connectors (RG-8 or equivalent) to be installed from the roof of the EOC to the FEMA space. (FEMA will provide antenna and radios to connect to this system at time of emergency.)

5. Two (2) key instruments, two (2) lines each as below:

   a. One (1) telephone for a FEMA secretary.

   b. One (1) telephone for general usage.

In summary, the total telephone requirement is four (4) instruments and three lines.

Reference 5

UNION CARBIDE EXPLOSION

EXECUTIVE BRIEFING

Event

At 12:45 a.m. on 12/11/82 an explosion occurred in a tank at Union Carbide. This tank was about one-half empty and contained 20,000 gallons (approx. 225,000 lbs.) of acrolien (C_3H_4O, pronounced a-CRO-li-en), a highly explosive, highly toxic substance. The tank is one in a group of five. Radio reports indicated that windows were shattered two miles away across the river. The explosion threw debris from the tank up to one-half mile away, displacing the destroyed tank nine feet, and destroyed much of the piping connecting the five tanks with the equipment used to keep the tank's contents at a low temperature.

Parish Emergency Response

At 12:53 a.m. on 12/11/82 the St. Charles Parish Sheriff's Office dispatcher was officially notified of the situation at Union Carbide.

The St. Charles Parish Assistant Emergency Preparedness Director was immediately notified. He in turn reported to the Parish Emergency Operations Center (EOC) and began its activation and notification of parish industries. At 1:10 a.m. the St. Charles Assistant Director notified the St. John the Baptist Parish Sheriff's Office of the situation. The Sheriff's Office then notified the St. John Civil Defense Director who reported to the St. John EOC and began its activation.

The Louisiana State Policy Hazardous Materials Task Force reported to the St. Charles Parish EOC and began their assessment after 3:00 a.m. After discussions with Union Carbide representatives, the State Police representatives recommended to St. Charles Parish officials at 4:25 a.m. that an evacuation be conducted within a five mile radius around the Union Carbide site. This recommendation was relayed to St. John Parish officials from the St. Charles EOC. Implementation of the evacuation began at 4:40 a.m. in St. Charles Parish and at 4:45 a.m. in St. John Parish.

Both St. Charles and St. John Parishes are divided into east bank and west bank sections by the Mississippi River. Approximately 17,700 persons were involved in the evacuation order. This included 5,400 on the west bank of St. Charles Parish and 8,700 on the east bank. In St. John Parish the west bank estimate was 2,600 persons and 1,000 persons on the east bank. The evacuation was begun in the middle of a heavy rainstorm with Sheriff's deputies and fire company volunteers going door to door to notify residents. In St. John Parish approximately 60 persons out of the 3,600 evacuees required bus transportation. In St. Charles Parish, approximately 100 persons used bus transportation. Most of these persons from both parishes using bus transportation were elderly poor. No additional transportation vehicles, vans or ambulances were required.

The evacuation was certified as completed for both banks of the river in St. John Parish by 5:45 a.m. In St. Charles Parish the west bank was certified as evacuated by 6:20 a.m. and the east bank by 7:10 a.m. Shelters were opened in both parishes for evacuees without a place to stay. St. John Parish sheltered approximately 1,200 persons, many of these coming from St. Charles Parish. St. Charles sheltered approximately 1,500 persons.

The evacuation remained in effect until the morning of 12/12/82 when a technical assessment team from Union Carbide was able to enter the plant and determine that a potential hazard no longer existed. Union Carbide then met with St. Charles Parish and Louisiana officials and made the decision to lift the evacuation by 10:30 a.m.

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Carl Walske
President

May 20, 1983

The Honorable Senator Alan K. Simpson
Chairman
Subcommittee on Nuclear Regulation
Committee on Environment and Public Works
United States Senate
Washington, D.C. 20510

Dear Senator Simpson:

We appreciated the opportunity to appear before your Subcommittee on Nuclear Regulation on April 15, 1983. Further to this testimony, enclosed are our responses to the additional questions that you forwarded to me in your April 20, 1983, letter. These responses incorporate the input of a number of utility representatives experienced in emergency planning.

We would be pleased to discuss these responses further with you or your staff.

Sincerely,

Carl Walske

CW:seu
Enclosure

Responses to Senator Simpson's Questions on Emergency Planning, Supplemental to AIF Testimony before the Senate Subcommittee on Nuclear Regulation on April 15, 1983

Question 1

You recommend in your testimony that Congress reexamine the basic institutional framework currently in place for emergency planning to provide a more workable process. What in particular would you recommend be done to improve the process?

AIF Response

As provided in the written testimony, the present emergency plan approval process for off-site emergency preparedness is complex and involves a number of participants in concluding that the overall emergency plan is acceptable. To improve the process, there are four key aspects which need to be addressed. These are:

- Establish clearly the NRC's responsibility as the lead federal agency to make the final determination regarding the overall adequacy of emergency planning. FEMA should be in an advisory role to the NRC with regard to the adequacy of off-site emergency planning. These roles should be clearly reflected in the implementing regulations;

- As established for other topics associated with the licensing of commercial nuclear facilities, bring the entire review process back into the NRC licensing process. There should not be a separate, detailed, parallel process as presently exercised by FEMA;

- Establish criteria which distinguish between the planning process and implementation. The federal agencies must determine if a given emergency plan and all supporting functions, if implemented, would adequately protect the health and safety of the public. The actual implementation of the federally approved plan, or any other plan, should be left to the discretion of the local and State authorities.

- The current process allows open ended financial costs associated with this regulatory process. There need to be criteria developed, based in part on costs asociated with non-nuclear related emergency planning, which provide guidelines in determining a reasonable cost of establishing and maintaining an adequate level of off-site emergency preparedness at and around commercial nuclear facilities.

Lead Responsibility

The subject of emergency planning is not the first instance where the NRC has asked other federal agencies to review a specific topic and provide comments. Under the National Environmental Policy Act, the NRC requires an environmental report from the applicant. In turn, the NRC requests comments from several federal agencies including the EPA, the Departments of Agriculture, Commerce, Transportation, Interior as well as the State. Although the NRC takes this input into consideration, it is clearly the lead agency for receiving and resolving any outstanding issues, with additional data supplied by the applicant where necessary.

In contrast, FEMA has established proposed regulations which detail a "350 Review Process" for evaluating the adequacy of off-site emergency preparedness. Although the NRC has representation on two FEMA review committees associated with this evaluation, FEMA is clearly the lead federal agency. In fact, it is the "350 Process" which has introduced the "veto power" by local agencies since FEMA only reviews in detail emergency plans submitted by the State. FEMA, in turn requests comments from other federal agencies including the EPA, the Departments of Energy, Agriculture, Transportation, Health and Human Services at two levels, at the regional level through the Regional Assistance Committee and at the National level through the Federal Interagency Central Coordinating Committee. NRC should request the review by the appropriate federal agencies, not FEMA. Also, the coordination of all comments and the final conclusions should be the responsibility of the lead federal agency, the NRC.

In a specific instance, FEMA has recently concluded after a recent drill that "FEMA cannot assure that the public health and safety can be protected in the 10-mile emergency planning zone (EPZ) (emphasis added)." That conclusion should be reserved for the NRC in its final determination regarding the overall adequacy of emergency planning, not FEMA.

The Licensing Process

With the present FEMA review process, any State or local agency can refuse to submit an emergency plan and directly affect the review process. In fact, as presently written, FEMA proposed regulations allow the State or local agencies, by their failure to cooperate, to influence directly FEMA's position, regardless of the site characteristics, the utility's compensating actions etc. In its recent testimony before your Subcommittee, FEMA has taken the position that, "we would have to advise the Nuclear Regulatory Commission that because the State and local government did not endorse this plan or were not participating, that we could not guarantee the adequacy of off-site preparedness or the safety of the public around a nuclear facility." In the case of local intransigence, this leaves the utility with no recourse to respond and provide an alternative approach.

With NRC as the lead regulatory agency and FEMA in an advisory capacity to the NRC, the plans, including the State and local plans, would be submitted by the applicant or licensee to the NRC for its review and conclusions. If an outstanding issue arises, the NRC licensing process would provide several forums to address and resolve it. These include NRC staff review, the NRC appeal process, the Atomic Safety and Licensing Board and the Commissioners, any of which could be utilized to address and reach a conclusion on the validity and impact of the issues on the health and safety of the public. FEMA, with the other federal agencies, would provide comments as a result of their evaluation of off-site emergency preparedness but the final determinations would be by the NRC. The NRC would also be the lead agency for providing the necessary testimony regarding the overall status of emergency planning. FEMA would only play a role in the hearing process at NRC's request.

With the NRC as the lead federal licensing agency requesting input from other federal agencies, there would no longer be a need for FEMA's Regional Assistance Committee and Interagency Central Coordinating Committee. Also, since FEMA would not be required to provide a formal approval of State and local plans, and the NRC would make the final assessment regarding the overall status of emergency preparedness, FEMA need not formally approve State and local emergency plans. Instead, they would provide their findings to the NRC for resolution and incorporation into the NRC's final safety evaluation report. This would simplify the licensing process by reducing the number of review committees, minimize duplication of effort, provide a forum for discussion of differences and establish clearly the NRC's role as the lead federal agency.

Off-Site Emergency Planning

The NRC has a responsibility under the Atomic Energy Act to protect the health and safety of the public. Although not explicitly discussed in the Act, the NRC and the industry recognize that in case of an unforseen situation, some level of appropriate emergency planning is an important element in protecting the health and safety of the public.

In addressing this issue, the NRC, in conjunction with the EPA and FEMA, has established criteria to be used in the development and implementation of emergency plans. These criteria, such as the emergency planning zones, are based, in part, on studies including WASH 1400 and other technical evaluations. For example, as stated in NUREG-0396, "the EPZ is of sufficient size to provide for substantial reduction in early severe health effects (injuries or deaths) in the event of the more severe Class 9 accidents."

The NRC, and other federal agencies requested by the NRC to review the emergency plan, should base their determinations on federally established criteria. If a State or local agency chooses to expand the criteria, their criteria should not be a condition of the utility receiving or maintaining an operating license. However, the affected State or local agency should be provided a licensing forum by the NRC to demonstrate why, in their particular case, the federal criteria needs to be changed. The utility should be provided an opportunity, in the same forum, to demonstrate if appropriate, why the change should not be a condition of the license.

In a recent opinion handed down by the Supreme Court in the case of Pacific Gas & Electric Company versus the State Energy Resources Conservation and Development Commission of California, it was concluded that, "Congress, in passing the 1954 Act and in subsequently amending it, intended that the federal government should regulate the radiological safety aspects involved in the construction and operation of a nuclear power plant, ···." The issues of emergency preparedness address radiological safety aspects of plant operation and, thus, the criteria for judging the adequacy of emergency planning are the responsibility of the NRC.

In its evaluation, FEMA and the NRC should review the actual capabilities of the State and local agencies. The fundamental question to be answered is whether the plan could be implemented in an actual emergency, even if certain jurisdictions decide not to cooperate in drills.

In summary, the NRC is responsible for determining that an acceptable plan has been written and the hardware and resources required to support that plan are, or have been made, available to the appropriate State and local agencies. It must conclude that the approved emergency plan, if implemented, would adequately protect the health and safety of the public. The actual implementation of the approved plan, or any other plan, should rest with the State and local authorities.

Financing

As provided in the AIF written testimony, the cost of emergency preparedness varies considerably. For example, the annual fees vary from $35,000 per year to $600,000 per year. There is draft legislation in the State of New York which would increase their annual assessment per unit from $250,000 per year to over $500,000.

The Congress should direct NRC to evaluate the costs of non-nuclear related expenses including preparation of the necessary plans and providing the support services in order to maintain a readiness posture. Then a comparison of and the basis for why the costs are different for commercial nuclear emergency planning than these non-nuclear related planning costs should be provided. Based on NRC's experience in this area, a cost/benefit analysis should be developed and submitted to Congress.

For example, the cost of a single drill per site has varied from $75,000 to $250,000. Taking a nominal value of $150,000 per exercise per site, for 80 sites this represents twelve million dollars in annual expenditure. Assuming an annual maintenance cost of $100,000 per year, this represents an additional 8 million dollars per year. Therefore, approximately 20 million dollars per year is spent for the drills and maintenance programs alone.

Congress should address the issue of whether it was its intent to place a burden of this magnitude on this industry and ultimately on the American public. NRC's cost/benefit analysis and comparision of non-nuclear planning and experience gained during actual emergencies would assist the Congress in addressing this question.

Conclusion

In conclusion, the following actions should be taken:

- NRC should clearly maintain the lead role in the review of emergency planning - FEMA should act in an advisory capacity;
- The implementing regulation should require that a utility developed plan be reviewed by NRC and FEMA, upon request, and given equal consideration as to its adequacy.
- FEMA should not have to approve State and local emergency plans. Since the NRC must write a final safety evaluation report which addresses the status of overall emergency planning, this includes consideration of whether acceptable State and local plans have been developed.
- The review process should be simplified and streamlined. This includes removing FEMA's Regional Assistance Committee and the Federal Interagency Central Coordinating Committee from the licensing process. As presently performed by the NRC in addressing other topics, the NRC would request and receive comments from the appropriate federal agencies regarding the adequacy of the plan.
- The Congress should emphasize to the NRC that its responsibility is to determine that an acceptable plan and the associated hardware and resources required to support that plan are or have been made available to the appropriate State and local agencies. The NRC determination should be based on whether the approved emergency plan, if implemented, would adequately protect the health and safety of the public. The actual implementation of the plan should be the responsibility of the State and local agencies.
- The Congress should direct NRC to prepare a cost/benefit evaluation of commercial nuclear power plant costs and a comparison of these costs to non-nuclear emergency planning costs. This report should include, in addition to the review of these costs, the evaluation of non-nuclear related emergency situations where people were required to evacuate, the results of the evacuation, the pre-emergency planning in place at the time of the evacuation, and FEMA's assessment of the evacuation. Based on this information, NRC should then be directed to provide alternative financing options to the Congress and an estimate of what the annual costs should be to maintain an adequate level of off-site emergency preparedness.

Question 2

What steps might be taken by a utility to implement a utility prepared plan and can such a plan really serve as an effective alternative to a state or county plan?

Answer

In response to the second part of the question, a utility prepared plan can serve as an effective alternative to a state or local plan.

At the present time, utilities are requested to develop the on-site portion of the emergency preparedness plan for a facility. This requires the establishment of expertise in the emergency planning area including a knowledge and assessment of the capabilities of the surrounding communities to support the on-site plan. Thus, while assumption of the primary responsibility for off-site planning would be a significant broadening of most utilities current capabilities, it would not be an entirely new activity, or one which should be considered intrinsically beyond their capability.

In addition, even in the face of a locality's refusal to submit a plan for FEMA's approval, it is unlikely that a utility would be required to start from scratch in developing such a plan. In most instances, states already have in place plans for emergencies more likely to occur than nuclear emergencies, including man-made emergencies such as transportation and industrial accidents and natural disasters such as floods, hurricanes, etc. These plans take into account the resources and capabilities of the counties and localities to deal with these situations. It is expected that utilities would draw on these plans as a starting point for developing a facility specific plan. These existing plans would be supplemented, if necessary, by additional studies which would draw on the expertise available in the region, including the use of the same types of consultants which states and localities might use in developing their own plans. Finally, there are substantial resources available at the federal level which a utility could draw on in developing its plan, including those of FEMA. Thus, a utility plan could be an effective alternative in those few instances where it might be necessary.

It is also important to recognize that significant improvements have been made in emergency preparedness over the last few years. More direction is available to emergency planners and participants in the form of specific and uniform recommended protective actions to be taken, enhanced emergency plans and procedures and upgraded training programs. Additional facilities are available, including a prompt notification system and onsite and offsite emergency facilities. Additionally, the Institute of Nuclear Power Operations (INPO) has been instrumental in establishing inter-utility agreements to support one another in an emergency. There is thus an enhanced awareness of emergency planning and its various elements within industry and at all levels of government.

As to the first part of the question, "What steps might be taken by a utility to implement a utility prepared plan", the response is necessarily based on the premise that even in situations where a state or locality has refused to submit a plan for approval, that in times of actual emergency, they will take all reasonable steps to protect the public. Thus, the utility's task is not to implement the plan exclusively on its own, but to assure that the resources are available to support whatever state or local action would, in fact, be taken, and to be available and prepared to render whatever assistance might be required.

JUN 14 1983

COMMONWEALTH of VIRGINIA
State Office of Emergency and Energy Services

H. KIM ANDERSON
State Coordinator

A. E. SLAYTON, JR.
Deputy Coordinator

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June 13, 1983

The honorable Alan K. Simpson, Chairman
Subcommittee on Nuclear Regulation
Committee on Environment and Public Works
United States Senate
Washington, D.C. 20510

Dear Senator Simpson:

A copy of the "Atomic Industrial Forum, Inc." responses to the questions posed by your Committee was provided to my office by the Virginia Electric and Power Company (VEPCO) for information.

Since we have developed firm positions over the years on several of the subjects addressed, we considered it appropriate to provide VEPCO with our views on the radiological emergency planning process. Enclosed is a copy of the letter we forwarded to VEPCO.

Sincerely,

H. Kim Anderson

HKA/HGA/jgl

Enclosure

COMMONWEALTH of VIRGINIA

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June 9, 1983

Mr. William L. Stewart
Vice President of Nuclear Operations
Virginia Electric and Power Company
Post Office Box 26666
Richmond, Virginia 20361

Dear Bill,

We appreciate your making available to us a copy of Mr. Carl Walske's May 20, 1983 letter to Senator Simpson which provides Atomic Industrial Forum, Inc. (AIF) responses to questions posed by the U.S. Senate Subcommittee on Nuclear Regulation regarding Radiological Emergency Planning.

We recognize that the views expressed in response to the questions are those of the AIF and selected utilities and not necessarily representative of the views of all AIF member utilities.

Although not solicited, we consider it appropriate to provide our assessment and views on some of the responses and the conclusions reached therefrom.

1. Mr. Walske's letter of transmittal specifies that the "responses incorporate the input of a number of utility representatives experienced in emergency planning". Regrettably, it doesn't indicate which utilities and their positions on these topics. It is likely that there are a number of utilities that would have an opposing viewpoint on some of the issues discussed. Since only one side is presented, it appears to us that the responses are somewhat biased and not fully objective.

2. Senator Simpson's letter to AIF addressed questions related to an examination of current procedures "for emergency planning to provide a more workable process." I am providing comment on some of the AIF responses.

   a. Lead Responsibility. AIF discussion and conclusions on this subject left little doubt that they desired that NRC clearly maintain the lead role in emergency planning and that this status be reinforced. In our opinion, the present arrangement of one Federal agency (NRC) assuming on-site responsibility and a second agency having off-site responsibility for planning, preparedness, and response to radiological accidents at fixed nuclear facilities is appropriate. Our experiences with responding to NRC mandates (prior to establishment of FEMA in 1979) was not satisfactory. In the pre-FEMA years, the NRC orientation was essentially to site-selection, design, engineering, and on-site response requirements. Off-site response played a subservient role. Of greater importance is a clearer definition of responsibilities of NRC and FEMA and much greater coordination between these two Federal agencies so that they present a unified position in their dealings with other Federal agencies, the states, and local governments. We would recommend extensive study of this entire area of responsibilities.

3. The Licensing Process. We do not agree that "the plans, including the State and local plans, would be submitted by the applicant or licensee to the NRC for its review and conclusions". In order to resolve a problem that may exist in isolation in one state or one political subdivision regarding the development and approval of radiological plans, we have taken in hand a sledge hammer to kill a fly. State and local governments in Virginia are autonomous and may resist strongly the concept of developing plans providing for the health and safety of its citizens and submitting them to the licensee, which is regulated by the State, for forwarding to NRC.

4. Off-Site Emergency Planning. AIF states that "The NRC has a responsibility under the Atomic Energy Act to protect the health and safety of the public". In accordance with the Commonwealth of Virginia Emergency Services and Disaster Law of 1973, as amended, the Governor, in his role as Director of Emergency Services, "shall take such action from time to time as is necessary for the adequate promotion and coordination of State and local civilian activities relating to the safety and welfare of the State in time of natural or man-made disasters". The law is quite explicit as to the Governor's powers and duties. We feel certain that he will not readily abrogate these responsibilities. As an ancillary consideration, it is our conviction that the Federal government should provide planning guidance, establish and maintain rigid criteria for preparation and evaluation of plans, and review and comment on the State and related radiological plans. However, we feel that approval of plans should be the responsibility of the Governor. He then could provide FEMA and NRC with an annual certification that the required joint field exercise, individual training, and plan maintenance has been accomplished. This would eliminate the need for a large task force of Federal employees currently required to administer these programs.

5. Financing. AIF states that "the cost of emergency preparedness varies considerably" between states. Also, that Congress should direct NRC to evaluate the costs of non-nuclear related expenses to provide a cost/benefit analysis between nuclear and non-nuclear planning and preparedness. In the Commonwealth of Virginia, we consider the annual fees assessed the licensee for preparation of plans, training, conducting exercises, and improving our response posture to be

nominal. It is our understanding that fees assessed licensees in contiguous states are reasonable. We visualize a wide variance in the fees assessed a licensee based on location of the power station, population densities within the plume exposure pathway EPZ, the road net, and other factors. We feel that the assessment of fees should be left to the discretion of individual states in coordination with the licensee. We do not foresee the need for Congressional intervention on this issue. Also, we see little to be gained in comparing the costs of commercial nuclear emergency planning and non-nuclear related planning costs. Besides the obvious cost differences predicated on the potential health risks between the two types of facilities, there is a psychological factor, perceived by the public, that is almost impossible to quantify.

We plan to provide the AIF and Senator Simpson with a copy of this letter.

Sincerely,

H. Kim Anderson

HKA/HGA/lgc

cc: AIF
Senator Simpson

STATEMENT
OF
GEORGE L. GLEASON
BEFORE
SUBCOMMITTEE ON NUCLEAR REGULATION
SENATE ENVIRONMENT AND PUBLIC WORKS COMMITTEE
APRIL 15, 1983

My name is George Gleason. I am Executive Vice President and General Counsel of the American Nuclear Energy Council. I am pleased to have this opportunity to present my views on the emergency planning process for nuclear power plants.

Section 109 of Public Law 96-295, the FY 1980 NRC authorization bill, sets out an emergency planning provision which reflects a compromise worked out in the House/Senate Conference.

The NRC authorization bill, as reported by the Senate Environment and Public Works Committee, contained no emergency planning provision; however, such a provision was included as a committee amendment before the bill reached the floor. Among other things, the provision required that as part of an application for an operating license, an applicant submit the situs state's emergency response plan, and prohibited the Commission from issuing a license unless satisfied that the plan adequately protects the public health and safety. On the floor, Senators Johnston and McClure vigorously opposed the amendment and offered a substitute amendment which was narrowly defeated. A Glenn alternative was also defeated. The Senate then approved a Hart/Simpson compromise amendment, which retained the features mentioned above, while spelling out in more detail specific criteria which would apply, as well as carving out a specific role for FEMA in reviewing state emergency response plans.

Like the Senate bill, the House bill directed NRC to establish rules regarding emergency plans and provided for the review and assessment of the adequacy of those plans. It did not, however, require the submittal or approval of such plans as part of an operating license application, or as a condition precedent to the issuance of an operating license.

As agreed to in conference after lengthy debate, Section 109, among other things, prohibited NRC from issuing an operating license unless it determines that (1) there exists "a state or local emergency preparedness plan" which complies with the Commission's regulations; or (2) in the absence of such a plan, "there exists a state, local, or utility plan which provides reasonable assurance that public health and safety is not endangered by operation of the facility concerned." A determination by the Commission pursuant to (1) must be made in consultation with FEMA, but the provision does not establish any FEMA role with respect to (2).

Because the NRC regulations implementing Section 109 were ambiguous on whether NRC would issue an operating license on the basis of a utility plan submitted pursuant to (2) above, Congress reiterated the provision in Public Law 97-415, the 1983-84 NRC authorization bill. As stated in Senate Report No. 97-113:

> "By requiring the NRC regulations be interpreted in accordance with the section the Committee seeks to underscore the intent of Congress, as evidenced by Section 109 of Public Law 96-295, that the NRC, in the absence of an approved state or local emergency preparedness plan, issue an operating license for a nuclear power plant if it determines that a state, local or utility emergency preparedness plan, or some integration of these plans, provides reasonable assurance that public health and safety is not endangered by operation of the plant."

Congress' concern over the potential misuse of the emergency planning process to delay or prevent issuance of operating licenses is evidenced throughout the legislative history of Section 109. As set out more fully in the attachment, it was not Congress' intention that the emergency planning process should get bogged down in squables at the state or local levels and, further, as stated in the Conference Report:

> "The conferees sought to avoid penalizing an applicant for an operating license if a state or locality does not submit an emergency response plan to the NRC for review or if the plan submitted does not satisfy all the guidelines or rules."

As Mr. Edelman's testimony illustrates, recent experience in New York and elsewhere has dramatically emphasized that the Congressional concern over misuse of the emergency planning process was well founded. Accordingly, as a very minimum, Congress should again extend the provision in Section 5 of the 1983-84 authorization bill, to assure that, in the absence of a state or local plan, NRC will act appropriately on the basis of a plan submitted by a utility applicant. Beyond that, based on the experience to date, consideration should be given to taking whatever other action is required to assure that the protections Congress sought to include in Section 109 against misuse of the emergency planning process prove adequate.

In this regard, I would like to take notice of a recent statement by NRC Commissioner Asselstine before Chairman Ottinger's House Subcommittee to the effect that the provision allowing submittal of a "utility" plan was designed to cover situations where there was either a state or local plan, but not to cover situations where there was neither. I have scoured the legislative history of both Section 109 and Section 5 and I find no such distinction. Neither do I find such a distinction drawn in any of my own voluminous files on the subject, which contain many staff drafts and other working papers, which do not appear in the official legislative history. Furthermore, since the explicit language of Section 109 and Section 5 provide for NRC action on the basis of either a state or local plan, it is clear that Congress did not anticipate that both would be required, and would not, therefore, have provided for submittal of a utility plan in the absence of one of them. If Commissioner Asselstine has some documentation to support his statement before Chairman Ottinger it would be very helpful in understanding this situation if he would make it available.

Beyond the potential refusal of a state or locality to submit an emergency preparedness plan for approval, it is clear that there are other fundamental problems in the process as presently constructed. One part of the problem deals with the substantive requirements which are continuing to escalate, and, indeed, in some instances appear to be responsible for causing needless concern among the public. An example is the requirement that warning notices and evacuation routes must be prominently posted in shopping areas, hotel and motel rooms, gasoline stations and other public places within 10 miles of civilian nuclear power plants when similar actions are not required in areas in proximity to activities having a history of requiring evacuations, such as munition factories, railroads, and dams. Absent any similar requirement for other activities having a history of requiring public evacuations, such requirements do not appear to be reasonable in the case of nuclear power plants.

The other part of the emergency planning problem, the one upon which I would like to focus here, is the institutional problem, by which I mean the interface between the various participants: NRC and FEMA and their national and regional offices; the state and local governments; the applicant; and adjacent states and localities; or, as I like to describe it, the who does what to whom and on what time schedule problem. Here again, the legislative history provides some insight into how we got to this point.

The emergency preparedness provision in question started out in the Senate with the rather straight forward provision offered by Senators Hart and Simpson. Basically, that provision stated that a utility applicant for an operating license would submit a plan to NRC and, if NRC didn't think it adequately protected the public, no operating license would be issued. On the Senate floor, things began to get complicated and what was finally approved was a much more complex provision. The Senate compromise, among other things, carved out an independent review and approval role for FEMA, a role which at the same time overlapped with NRC responsibilities. The provision was further modified in the conference where, again among other things, it was specified that, rather than the utility applicant submitting a plan directly to NRC, as the Senate version required, a state or locality would submit the plan to FEMA who, in turn, would render its advice to NRC, who, in turn, could not act until it received and considered FEMA's advice. Of course, none of the foregoing applied if there was no state or local plan, in which case the utility would submit the plan directly to NRC, and no role was specified for FEMA review or advice. If this sounds confusing in its description, as Mr. Edelman's statement indicates, it is as clear as spring water compared to the problems created by its actual implementation.

Just to summarize, let me put a few of these problems which Section 109 creates in their institutional context:

Responsibility without Authority: Authority without Responsibility. A utility has the responsibility to its consumers, stockholders and rate regulators to provide power and has already invested billions of dollars on a nuclear plant. Yet it is, in effect, a bystander, not a direct participant, in the emergency plan approval process. For example, one utility executive recently noted that in his state, the planning body actually prohibits the utility from having any contact with FEMA regarding the emergency plan. The state or locality, on the other hand, which Section 109 authorizes to submit a plan for approval, has no burden to justify its refusal to do so. It can simply walk away from the process and leave the utility holding the bag.

Parallel, Complex and Circuitous Review Procedures. Other witnesses, including FEMA, have already described the number of actors which get involved in the process and the circuitous route by which the emergency plan finally gets to NRC. Perhaps, considering the nature of the problem, it is inevitable that many different Federal, state and local agencies and review groups must be involved. However, it must be questioned whether the separate and parallel FEMA and NRC roles really contribute to an effective and efficient process. Certainly FEMA has the expertise in this area and NRC should continue to look to it for expert advice, but emergency planning is a fundamental aspect of NRC's licensing and regulation of nuclear power plants and there should be a direct relationship between the utility applicant or operator and NRC. In other words, the entire process must be brought into the context of the NRC licensing and regulatory process. The separate and parallel FEMA process not only tends to diminish the utility and NRC responsiblities, but increases prospects for delay and collateral challenges outside the NRC process.

Mixing Politics With Public Safety. The Atomic Energy Act reserves to the Federal Government matters affecting the design, siting and operation of licensed facilities. Yet, what we are seeing under the current approach is a substantial state and local intrusion into that process; for example, Suffolk County's demand to inspect the Shoreham facility, and the recent proposal in the State of Maine to extend the emergency planning zone from 10 to 50 miles. But, even worse, we are seeing the entire process subjected to the fortunes of state and local politics. This could not be more clearly demonstrated than in the Shoreham situation. Beyond that, there is an even more fundamental problem once an emergency plan is actually approved, since there is no requirement in law or NRC regulations that a state or locality actually implement that plan at the time of an emergency, as opposed to some other plan. We should legislate on the basis that in times of emergency state and local governments will fulfill their responsibilities to protect the public, with or without a Federally approved plan. This is illustrated by the situation where Rockland County, New York, has refused to participate in the plan for the Indian Point plant, but has assured that it would act appropriately in time of emergency to protect the public. But, who is to say that, even where there is an approved plan, whether as a result of a local or state election a new administration will feel bound to implement that plan. FEMA and NRC should not be expected to chase around the country analyzing the results of every election to try to determine whether the new crew still intends to implement the approved plan. If, indeed, a plan has been developed which is determined to adequately protect the public, if implemented, the question of whether that plan or some other plan would actually be implemented in time of emergency should not be a consideration in approval of that plan.

Financial Bonanza. Planning for a nuclear emergency probably places additional financial burdens on states and localities, and, while not required to do so, utilities generally contribute to the payment of those costs. Many states and localities have passed laws requiring them to do so. The problem is that in many cases the utility is called upon for payments way out of proportion to the additional burden.

For example, one utility is required to pay more than one-half of the emergency planning budget of each of the counties included in the emergency planning zone. In addition, because of the leverage which Section 109 provides states and localities, utilities typically are required to provide additional financial support for such things as the construction of new bridges and the purchase of ambulances, fire trucks and police equipment.

Emergency planning is a very expensive process for utilities and becoming more so daily as the substantive requirements increase almost exponentially. While utilities recognize their responsibility to contribute to this process, there needs to be defined some reasonable limits on their obligation. As one utility representative recently said, "Even counties which used to be cooperative are beginning to find out what a bonanza Section 109 really handed them." Planning for nuclear emergencies is only one aspect of an area's other disaster emergency planning and the appropriate level of requirements and costs should be evaluated in that broader context.

The foregoing suggests that certain adjustments need to be made in the approach to emergency planning. The original Hart/Simpson language offered in the Senate would be a good place to start. It must be remembered that establishment of the current approach was one of the first Congressional responses to the Three Mile Island accident and I believe it was recognized at that time that additional experience might be required before the optimum approach might be constructed. It is significant in this regard that Congress established Section 109 as a temporary authorizing provision, rather than as an amendment to the Atomic Energy Act. I might note, also, since Section 109 has long since expired, there is currently no mandate in law that NRC continue to require submittal and approval of emergency plans. Thus, the present Commission, or some future one, could opt out of the process altogether -- and based on experience to date and the advances being made in the source term work -- would be justified in doing so. For the reasons I have already stated, I believe the current approach is an impediment to sound emergency planning. With the benefit of hindsight and experience we can and must construct a better planning process.

I thank the Subcommittee for this opportunity to present my views on this important subject.

Attachment

Attachment

From the Senate debate:

> Senator Johnson: "I know that there are some Governors in this country who do not want nuclear plants to operate within their states... It is not the duty, the right, of a Governor of one state to stand in the way of that nuclear license to operate... I do not believe, Mr. President, that the Governor ought to have that power...that is simply unacceptable in a country that is energy short, to make the people of a state pay the price for the disagreement between two sets of bureaucrats...the energy need in this country is much too serious to let it get bogged down in fights between Governors of states who want no nuclear energy and the Nuclear Regulatory Commission."
>
> Senator Simpson: "Within the amendment which is presented on this subject, there is the possibility, remote as it is, that any faction could use the mandatory planning requirements spelled out in this bill to arbitrarily shut down the operation or construction of a nuclear power plant. I feel that we have effectively alleviated that issue by what we have done and what we are suggesting... I think he (Governor Brown) is an obstructionist with regard to nuclear power and will do all in his province to destroy the use of nuclear power in the State of California, and with that foreknowledge we will deal with him accordingly."
>
> Senator Hart: "It does provide, I believe, implicitly and explicitly, pressure upon the states to act, because of their need for electricity generated by the reactor..."

From the Conference debate:

> Rep. Symms: "Let's say, for example, that the state doesn't cooperate, but the licensee is out there doing everything right along with the state, so this amendment would be a roadblock which would hinder going ahead with a plan that may have many millions of dollars at stake, isn't it possible?..."
>
> Senator Hart: "I think it is possible, but not probable...."
>
> Rep. Symms: Mr. Chairman, I still would just say in closing what we are doing here, if we accept the Senate position, is we are going to have one party responsible for the actions of another party and I do not think that is in our best interests or in the best interests of the country."

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TESTIMONY OF STEVEN C. SHOLLY
ON EMERGENCY PLANNING AND PREPAREDNESS AT
COMMERCIAL NUCLEAR POWER PLANTS

BEFORE

UNITED STATES SENATE
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS
SUBCOMMITTEE ON NUCLEAR REGULATION

15 APRIL 1983

Introduction

Mr. Chairman and Members of the Subcommittee on Nuclear Regulation, my name is Steven C. Sholly and I am a Technical Research Associate with the Union of Concerned Scientists. With me today is Michael E. Faden, UCS Legislative Counsel. We appreciate the Subcommittee's invitation to testify on radiological emergency planning and preparedness at commercial nuclear power plants.

This testimony will focus on five principal issues:

(a) The nature of the NRC/FEMA radiological emergency planning and preparedness review process, and the quality of citizen input into that process;

(b) The ability of a utility to maintain adequate emergency preparedness and implement an adequate emergency response for offsite areas;

(c) The status of compliance with the NRC's alerting and notification requirements;

(d) The impact of postulated "source term" reductions on radiological emergency planning and preparedness requirements; and

(e) The results of recent accident probability calculations and their impact on emergency planning.

Before these issues are addressed, I will present a brief historical overview of radiological emergency planning and preparedness.

I. The Development of Radiological Emergency Planning

The early record of federal nuclear regulatory agencies in radiological emergency planning and preparedness is marked by a strong reliance on the presumed low probability of severe reactor accidents associated with the potential for significant offsite consequences to public health and safety. The October 1975 release of the Reactor Safety Study (RSS; also referred to as WASH-1400 or the "Rasmussen Report") raised questions about the wisdom of the agencies' prior position on these matters.

Among other significant conclusions, the RSS estimated that the probability of a core melt accident for reactors generally was about one chance in 20,000 per reactor-year. Prior estimates had been in the range of one chance in a million per reactor-year. Further, the RSS concluded that core melt accidents dominate the risk to the public posed by the operation of commercial nuclear power plants.

The RSS accident consequences model employed emergency response assumptions which differed significantly with then-current practice. Before 1975 (and continuing until 1979), AEC and NRC practice limited offsite radiological emergency planning and preparedness considerations to a region defined in the regulations as the "low population zone" (LPZ). The LPZ is defined as "the area immediately surrounding the exclusion area which contains residents, the total number and density of which are such that there is a reasonable probability that appropriate protective measures could be taken in their behalf in the event of a serious accident".

The result of the application of the LPZ concept to radiological emergency planning and preparedness was that emergency plans were limited to a radius around the reactor site ranging from less than a mile to about eight miles. The LPZ distance was set in part by permitting credit to be taken for installed safety systems; thus, the LPZ distances could be much smaller than the regulations would otherwise permit. The very safety systems for which credit could be taken to reduce the size of the LPZ, however, were some of the systems whose failure could result in the need for offsite emergency response.

In contrast with the LPZ concept, the RSS accident consequences model assumed that evacuation would occur both within a five-mile radius and within a 45-degree sector extending downwind twenty-five miles. This contrast in consequence modeling and actual practice between RSS and the NRC regulations led the Conference of Radiation Control Program Directors in 1976 to call upon the NRC to "make a determination of the most severe accident basis for which radiological emergency response plans should be developed by offsite agencies".

In response to this request, the NRC and the Environmental Protection Agency organized a "Task Force on Emergency Planning" to address this question and related matters. The final report of the Task Force was published in December 1978 as NUREG-0396. The report recommended the creation of two "emergency planning zones" that were substantially larger than previous regulatory limits.

First, a "plume exposure pathway emergency planning zone" (Plume EPZ) was recommended for protection against whole-body and inhalation exposures resulting from ground-deposited radionuclides and from immersion in the radioactive plume released during a reactor accident. The outer boundary of the Plume EPZ was to be set at about ten miles. Second, an "ingestion exposure pathway emergency planning zone" (Ingestion EPZ) was recommended for protection against consumption of contaminated crops, milk, and water. The outer boundary of the Ingestion EPZ was to be set at about fifty miles.

Before these recommendations received Commission endorsement, however, the Three Mile Island accident occurred on March 28, 1979. In the aftermath of the TMI-2 accident and the investigations into that accident, the NRC solicited public comment on emergency planning issues in an "Advance Notice of Proposed Rulemaking" on July 17, 1979. Subsequently, the NRC published proposed rules in September and December 1979 that led to the present set of emergency planning and preparedness requirements. In proposing the new rules in December 1979, the NRC placed a great deal of importance on offsite radiological emergency planning and preparedness:

> "The proposed rule is predicated on the Commission's considered judgment in the aftermath of the accident at Three Mile Island that safe siting and design-engineered safety features alone do not optimize protection of the public health and safety. Before the accident it was thought that adequate siting in accord with existing staff guidance coupled with the defense-in-depth approach to design would be the primary public protection. Emergency planning was conceived as a secondary but additional measure to be exercised in the unlikely event that an accident would happen. The Commission's perspective was severely altered by the unexpected sequence of events that occurred at Three Mile Island. The accident showed clearly that the protection provided by siting and engineered safety features must be bolstered by the ability to take protective measures during the course of an accident." (44 F.R. 75167, 75169, December 19, 1979)

The Commission concluded that "in carrying out its mandate to protect the public health and safety, the Commission must be in a position to know that off-site governmental plans have been reviewed and found adequate" (44 F.R. 75167, 75169, December 19, 1979). In reaching this conclusion, the Commission explicitly recognized the significant new status given to emergency planning:

> "The Commission recognizes that this proposal, to view emergency planning as equivalent to, rather than as secondary to, siting and design in public protection, departs from its prior regulatory approach to emergency planning. The Commission has studied the various proposals and believes that this course is the best available choice." (44 F.R. 75167, 75169, December 19, 1979)

In adopting the final emergency planning regulations in August 1980, the Commission essentially reaffirmed these judgments (45 F.R. 55402-55413, August

19, 1980), concluding "that adequate emergency preparedness is an essential aspect in the protection of the public health and safety".

Another significant development after the TMI-2 accident was the activation of the Federal Emergency Management Agency (FEMA). In December 1979, President Carter assigned FEMA the primary federal responsibility for offsite radiological emergency planning and preparedness. FEMA and the NRC jointly published radiological emergency planning and preparedness guidelines which were issued in final form in November 1980 as NUREG-0654. Pursuant to NRC's emergency planning regulations, radiological emergency plans for the Plume and Ingestion EPZs were to have been implemented for all operating nuclear power plants by April 1, 1981.

II. Is The NRC/FEMA Plan Review Process Working Well?

The Subcommittee's invitation letter expressed a particular interest in our assessment of the NRC/FEMA plan review process, including an appraisal of the effectiveness of that process and recommendations for changes, if any. On one hand, radiological emergency plans of far greater scope than before the TMI-2 accident are now in place around all operating U.S. nuclear power plants. Given the resource limitations under which FEMA has been operating, much has been accomplished since 1979. On the other hand, four years after the TMI-2 accident and nearly two and a half years after the promulgation of the NRC's revised emergency planning requirements, it is clear the process is not working well.

Further, we do not believe that the NRC's emergency planning requirements provide an adequate level of protection for the public health and safety in the event of a severe reactor accident. We hold this view on a number of substantive grounds. The Subcommittee's invitation letter addressed itself to the process by which emergency planning and preparedness is reviewed under the existing NRC/FEMA process, and it is to this issue (rather than substantive disagreements with the requirements) that we address ourselves below.

There are several fundamental problems related to the emergency planning and preparedness review process. First, FEMA is understaffed and underfunded for the task at hand. With the combination of the review of both plans and exercises (that simulate implementation of the plans) and the large number of state and local jurisdictions involved (541 jurisdictions in the Plume and Ingestion EPZs for 87 sites), FEMA is simply overwhelmed. This situation will not improve markedly over time because radiological emergency planning and preparedness is an ongoing process which does not stop with formal plan approval. We recognize that FEMA has a number of important responsibilities apart from radiological emergency preparedness as it affects commercial nuclear powerplants, but this does not detract from the need for a level of staffing that is adequate for the radiological emergency preparedness tasks assigned to FEMA.

Another key problem, particularly from the standpoint of the residents of areas potentially affected by reactor accidents, is that the NRC/FEMA review process goes on largely behind closed doors. Much of the review is undertaken by either the Regional Assistance Committee (RAC) or a joint

NRC-FEMA "steering group". The public is excluded from participation in (or even observation at) meetings of both groups.

In view of NRC's wholesale, unquestioning acceptance of FEMA's findings and determinations on offsite planning and preparedness, it is especially important that the entire FEMA review process be open to full citizen participation. Public involvement is important in the radiological emergency planning and preparedness reviews because of the highly subjective judgments that are necessarily involved. Hard and fast criteria, especially quantitative criteria against which the plans can be measured, are few and far between. In some respects the members of the public are in a better position to provide input than the local and State governments involved, because of their first-hand experience with the geographic area for which plans are being developed. This experience may often be more valuable than expensive studies performed by "experts" unfamiliar with the territory.

Despite these factors, which argue persuasively for significant public involvement, local residents are treated largely as a nuisance. Public participation is generally not actively sought in the FEMA review process. Where public involvement is sought, it is at the end of the process after the official positions of the emergency response agencies are already fully fleshed out. Moreover, FEMA is under no obligation to respond to citizen comments on the plans under review. The local public meetings that FEMA holds thus take on a perfunctory character.

We believe that the public has a legitimate role in emergency plan exercises. For example, the offsite alert and notification systems are routinely tested in the exercises, and area residents could be a valuable source of information as to the functioning of these vital systems. In broader terms, involvement of the public in the observation and critique of the exercise could not help but benefit the agencies' review. In addition, public education about the plans would be greatly enhanced by opening up the exercises to citizen participation and observation. Among other things, limited simulations of the emergency response could be undertaken during exercises. For example, schools could review their plans with students and professional staff, hospitals and nursing homes could explain their emergency procedures to staff and patients, and evacuation reception centers could be opened to public inspection.

A related problem is the exclusion of the public from the emergency plan exercise process (as distinct from the plan review process). The NRC has recently amended its regulations to separate emergency plan exercises from the licensing process, asserting that such exercises, their review, and corrective actions based on the review are a part of the NRC's inspection process. UCS, joined by the Commonwealth of Massachusetts, has challenged this action in the U.S. Court of Appeals.

A final problem is the lack of a formal plan review procedure. FEMA has operated for nearly three years under the provisions of a proposed rule (44 CFR 350, proposed; 45 F.R. 42341, June 24, 1980). Final action has not been taken on that proposal, and FEMA representatives acknowledged in the TMI-1 restart proceeding that the FEMA review process has been tailored to specific situations. The FEMA review process is thus open to arbitrary action or inaction. We believe that it would be appropriate for FEMA to renotice its proposed rules and solicit public comment based on the experience of the last three years. FEMA should then, after a detailed evaluation of the comments, promulgate a final rule setting forth the plan review and approval process.

In order for the review and approval process to be most effective, we believe that improved opportunities for citizen participation in the process are a necessary element of any final FEMA rule. These could include establishment of citizen advisory panels to work with State and local governments as radiological emergency plans are developed. Such provisions could also include a formal process in which public comments are addressed by FEMA in a published record. In general, we advocate early and continuing public involvement throughout the planning process.

III. Can a Utility Attain, Maintain, and Implement Adequate Offsite Preparedness?

Section 5 of Public Law 97-415 authorizes the NRC to issue an operating license for a commercial nuclear power reactor if the Commission determines that there exists a State, local, or utility emergency plan which provides reasonable assurance that the public health and safety is not endangered by operation of the facility. Certain parties have interpreted this provision as authorizing the Commission to issue a license even in the absence of an adequate State or local emergency preparedness plan.

UCS believes that Section 5, so interpreted, is ill-considered and impractical because a utility plan, standing alone, cannot provide the reasonable assurance that this provision calls for. So construed, Section 5 would provide little assurance that anything other than planning will be done; little assurance that adequate emergency preparedness will be attained and maintained; and little assurance that any plan can be implemented when it is needed.

It is important in discussing Section 5 to realize what a utility plan, standing alone, must entail. Two variations are possible. Either the plan would be implemented solely by the utility, or else it would rely on state or local governments to take actions that they have concluded (by their own inability to submit an acceptable plan or by their refusal to submit an inadequate plan) either cannot be taken or if taken would not adequately protect the affected population.

Consider for a moment the situation if a utility were called upon to take charge of the full range of government response mechanisms in a radiological emergency. The combined personnel of the utility and its consultants will already be severely taxed in dealing directly with a major reactor accident. They are likely to be hard-pressed to get the reactor under control and communicate timely reports on the status of plant safety features and reliable projections of radiation doses resulting from the accident. To assume that the utility can at the same time manage the offsite emergency response is ludicrous.

For a utility to provide adequate protection in the absence of a workable State and/or local plan, the utility would literally have to assume the basic functions of government. The utility would require the capacity to take offsite protective actions. To do so would require the utility to establish and maintain (throughout the operating life of the reactor) a significant offsite emergency response capability. The utility would also have to be delegated the authority to direct that protective actions be taken in response to an accident, including: declaring an emergency, making emergency broadcasts, closing schools and public buildings, commandeering transportation resources, restricting access to potentially affected areas, controlling traffic flow, ordering implementation of protective actions (including evacuation), and requesting federal assistance. Utilities have never performed any of these functions; nor are they capable, as presently organized and staffed, of performing them.

In order to provide the reasonable assurances that Section 5 demands, the Commission must be able to find that a utility could — from the day the plant begins operation throughout the operating life of the plant -- accomplish all these tasks at a high level of competence and efficiency. We submit that such a finding cannot be made in good conscience, absent substantial changes in the law and in the management structure of utilities, and absent very substantial increases in the resources (both manpower and funding) that utilities expend in emergency planning and preparedness.

Compounding this dilemma is the fact that the utility and its consultants will be less familiar than government officials with the local conditions which could handicap any effective emergency response. This latter point is especially pertinent for those accident sequences which occur in a relatively short time. Indeed, for those accidents which lead to core melt (i.e., those accidents in which some offsite emergency response will be most likely to be required), core melt is predicted by current accident models to begin less than an hour after the reactor core is uncovered, and the reactor vessel is predicted to fail within an hour after core melt is complete.

Thus, once the reactor core has been uncovered, the remainder of the accident progresses very quickly. Ironically, it is unlikely that indications of a severe accident in progress will be evident before core uncovery begins. Indeed, during the TMI-2 accident, an evacuation of the area near the reactor site was being considered about four hours into the accident but was not implemented; this decision came at a time when the reactor core was probably still uncovered (NUREG/CR-2925, page 93). Improvements in accident monitoring instrumentation and emergency procedures should reduce (but not eliminate) the chance that this situation could occur in future emergencies.

In addition, for those accident sequences which result in a large release of radioactive materials to the environment, a recent study of emergency response to reactor accidents concluded that it may be necessary to implement protective measures before a release actually occurs in order to assure the effectiveness of the protective actions (NUREG/CR-2925, page 98). These factors clearly point to the need for a substantial local emergency response presence in order to provide adequate protection of the public health and safety.

While the point about utility and consultant personnel being generally unfamiliar with the region surrounding the plant applies especially to fast-breaking accidents, it also applies to the accidents which develop over a longer period (such as the TMI-2 accident) because the utility contract personnel are frequently located at a considerable distance from the site.

Many of these people will be new to the geographic area surrounding the plant. They must be mobilized, transported to the reactor site, informed of the nature of the emergency, and effectively deployed.

We do not doubt that, in the event of an accident at a nuclear power plant, State, local, and volunteer emergency response personnel will do the best that they can. The NRC and FEMA must recognize, however, that family responsibilities will be an important consideration for these people. It is expecting too much, however, to believe that emergency response personnel will be prepared to place themselves at significant personal risk to carry out plans that they do not believe are capable of protecting the residents for whom the plans are intended, particularly if the plan is imposed by a utility for the sole purpose of obtaining an operating license for a poorly-sited nuclear power plant.

An even more serious issue, however, is that the institutional missions of utility and government are intrinsically different. Most utility management priorities are directed at accident prevention; if an accident occurs, the utility's role shifts to bringing the plant under control (if possible) and providing assessments of plant status and offsite radiological hazards to the emergency response agencies. There is little incentive for utilities and their contractors to focus on emergency response; as a FEMA-sponsored study of the TMI accident emergency planning experience concluded, "Neither psychological nor organizational forces encourage them to speculate on the 'unpredictable' event." (RS-2-8-34, "Evacuation Planning in the TMI Accident", September 1979, page vi). Any utility management will face very strong temptations either to hold off the implementation of protective measures until the last possible moment, hoping that the situation can be brought under control, or, failing to appreciate the magnitude of the danger, to delay the initiation of necessary precautionary actions.

Local and State governments have the indispensable role of an arbiter in a nuclear powerplant emergency. They must balance utility and public interests in deciding whether to order protective actions. If the utility were put in control of offsite response functions, no such balancing would be possible.

Although the conflict that Section 5 attempts to resolve is frequently stated in terms of a State and/or local government holding the utility's operating license hostage for emergency planning-related improvements, Section 5 would equally plausibly allow the utility to hold State and local governments hostage to the operation of a powerplant for which the responsible authorities have legitimately concluded that no adequate emergency response plan can be implemented.

In the final analysis, only the State and local governments can set the balance between the need for and the cost of power, on the one hand, and the risks of operating a particular powerplant at a particular site. No agency of the federal government -- least of all the Nuclear Regulatory Commission -- has historically demonstrated the sensitivity needed to make these critical public policy decisions. The NRC (and its predecessor, the AEC) has approved construction permits for sites that, by all current standards, would not be seriously considered. Indian Point, Shoreham, Zion, and Limerick are only four examples. Having given that initial approval, the NRC is extremely reluctant to admit that it has made a mistake, particularly if several billion dollars worth of concrete and steel have subsequently been erected.

The issue of whether to shut down a plant, or to refuse to allow one to begin operation, because no amount of emergency preparedness would sufficiently protect the public is not, at bottom, a radiological issue for which the NRC can claim special expertise. Responding to emergencies is fundamentally a state responsibility. So is deciding the economic issues at stake, because the risk/benefit tradeoff will ultimately be expressed in dollars-and-cents terms. The state utility regulatory body will eventually be called upon to allocate the costs of a plant shutdown. If the state, through whatever decision-making process it establishes, decides that the benefits to its citizens of not operating the powerplant exceed the costs, that decision is one which the federal government should not preempt.

The implications of this issue were well-understood by the Senate when it debated (and ultimately defeated) an amendment that would have allowed the NRC to put into effect its own emergency preparedness plan if the appropriate state and local authorities failed to submit an adequate plan. (Cong. Rec., July 16, 1979, pp. S 9471-9484) As Senator Simpson most cogently put it:

> ...there is the possibility, remote as it is, that any faction opposed to nuclear power could use the mandatory planning requirements spelled out in this bill to arbitrarily shut down the operation or construction of a nuclear powerplant.
>
> I feel that we have effectively alleviated that issue by what we have done...To propose that Congress now authorize the NRC to invade an area of traditional State authority in providing for the planning of the evacuation and sheltering of its citizens during times of natural or man-made disaster is against my sense of inherent distinction between State and Federal Governments....
>
> ...where we are allowing the Federal Government to intrude into this area, we are actually into the most sensitive of areas because we are saying to the States, "You cannot do your own State land-use planning."
>
> ...land use planning is a very difficult thing to deal with. The only way you deal with it is with local control with local people at the local level with perhaps State observation and in that situation it will work. If at any time there is an intrusion of the Federal Government, it will not work.
>
> I think here the power to even develop and later if necessary to implement the Federal interim plan on behalf of a sovereign State for responding to an emergency is just too extreme a measure for me...Emergency planning in the State is really land-use planning plus, with oak leaf clusters. It consists of evacuation zones, shelters, highway usage and much, much more.
>
> Cong. Rec., July 16, 1979, p. S 9473

Senator Hart, the floor manager of the bill, shared Senator Simpson's reservations about allowing a Federal agency to override the states in this area:

> (The Committee bill) does provide, I believe, implicitly and explicitly, pressure upon the States to act, because of their need for electricity generated by the reactor. Citizens who believe that their Governor or State leaderships are not moving on this have plenty of opportunity to express their wishes and feelings on the matter...
>
> There are two fundamental issues involved here, Mr. President. One is whether we learned anything from the Three Mile Island accident. For myself, I learned that we should not have reactors operating in this country...that do not have fundamental plans made to accomodate an accident and to protect the lives, the safety, and the health of the people in the area. That is a fundamental issue.
>
> ...The second is whether the planning should be done by Federal or State agencies.
>
> What is contemplated here by the Senator from Louisiana...is a fundamental shift in government authority. It is a fundamental tampering with the federal system. It would give some authority to the Federal Government which has never before been obtained by the Federal Government in this area.
>
> (Cong. Rec., ibid, p. S 9476)

Senator Simpson also explained the practical difficulties inherent in any Federalization of the emergency planning process:

> ...who will know better what to do with emergency State planning, which again I refer to as a form of land use in its highly emotional form. Who will be better able to determine which agency of the State government will perform, ... Who will determine who is best able to determine which hospitals will be used in the evacuation procedure in the event of an onsite release? Who better than the Governor will know better when to order the evacuations? The burden is on the State government, exactly where it should be.
>
> The final critical thing is civil defense officials cannot be nationalized and galvanized into action.

What is proposed under the most expansive construction of Section 5 is precisely what the Senate rejected in 1979: allowing the NRC to adopt its own plan (in this case, one submitted by a utility). All of the concerns so seriously assessed by Senators Simpson and Hart in the 1979 debate cannot now be neatly brushed aside.

If, as the Subcommittee's letter postulates, a State or local government formally withdraws its support for a previously-approved emergency plan, UCS's view is that emergency planning must be treated with the same importance as any other safety requirement. When essential NRC requirements are not met, plant operations should cease until compliance is achieved. There is little rational basis for permitting continued operation on the ground that an accident has only a small chance of occurring during a specified interim period in which the deficiencies may be rectified (see Section VI of this testimony).

The NRC, in promulgating its final emergency planning regulations, recognized that operation of some reactors might be affected through the inaction of State or local governments or through an inability to comply with the regulations (45 F.R. 55402, 55404, August 19, 1980). For the hypothetical case in which a State or local government withdraws its emergency plans after they are approved, the NRC regulations explicitly provide a process by which such an action would be addressed.

As we stated previously, we believe that the proper action in this situation would be to terminate plant operation until emergency planning and preparedness is again adequate. This course of action is open to the NRC under its regulations. They provide that the Commission may issue a show cause order (either on its own initiative or in response to a petition) under which a licensee would be required to show cause, pursuant to 10 CFR 2.202, why its powerplant should not be shut down. The NRC has the authority to make the show cause order immediately effective in appropriate circumstances pursuant to 10 CFR 2.202(f).

In considering what action to take in cases involving either an application for an operating license or an already-operating plant, the NRC's regulations at 10 CFR 50.47(c)(1) permit the licensee or applicant to show that: (a) the deficiencies in the plans and preparedness are not significant for the plant in question; (b) adequate interim compensating actions have been or will be taken promptly; and (c) there are other compelling reasons to permit plant operation. It should be noted that the "other compelling reasons" clause has been explained by the NRC staff as "something major such as an oil embargo" (NUREG/CP-0011, April 1980, statement of Michael T. Jamgochian, NRC staff, page 7). The Commission must, in any event, find that the public health and safety is adequately protected before it may issue an operating license, and must continue to be able to make this finding in order to permit continued operation.

IV. What is the Status of Compliance with NRC Alert and Notification Requirements?

As the Subcommittee is aware, very few of the NRC's licensees met the original deadline for implementation of the NRC's alert and notification system requirements. NRC acted belatedly (and incorrectly, in our view) to extend the deadline to a time when it was relatively certain that compliance could be achieved by all licensees.

Significant problems exist with the alert and notification systems, especially those which depend upon sirens for the alert function. A study performed for the NRC by Bolt, Beranek & Newman and Battelle Pacific Northwest Laboratory (reported in a methodology volume, NUREG/CR-2654, and an evaluation volume, NUREG/CR-2655) indicates that performance of the siren alerting systems varies widely under different weather conditions and by time of year.

[The report evaluated siren systems at four nuclear plants; there is no reason, in our view, to assume that the situation is vastly different at other sites.] This study estimated that the percentage of the affected population that would be alerted by a siren system ranged as low as forty-two percent.

In addition, the siren systems are prone to both failures and false alerts. Because of the lack of a reporting requirement for sirens, the NRC and FEMA have little idea how widespread this problem may be. A perusal of newspaper clippings in the NRC's Public Document Room, however, reveals that the failure of one or more sirens during periodic tests is not uncommon.

A critical flaw in the alert and notification systems stems from the very accidents for which they may be needed. High among accident sequences which can lead to core melt are those involving loss of offsite power. In addition, some plants are sited in areas where seismic risks are significant, or where hurricanes or other storms could cause an extended loss of power. The siren systems depend upon the electrical grid for power; with few exceptions, they have no backup power source. Thus, during some of the accident sequences for which the sirens will be most needed, they are guaranteed to fail.

Corrective measures are necessary. First, the NRC and FEMA should seek information from the utilities and State and local governments about the design specifications of the siren systems. This data is needed not only for the sirens themselves, but also for the poles upon which they are mounted, the connections between the sirens and their power source, and the signal transmission systems used to remotely activate the sirens. Tests of the systems may be necessary to determine the conditions under which they might fail, especially seismic and weather conditions.

Second, the NRC should establish reporting requirements for defects in the public alerting and notification systems. This will ensure that the NRC (and the affected State and local governments) receive timely notice that the alerting and notification systems are wholly or partially inoperable. Third, tests should be conducted under a variety of weather conditions to establish the range of the sirens. This will enable each level of government to make informed decisions whether the systems need to be augmented with additional sirens, or whether supplemental means of notification may be required under certain circumstances.

V. How Will Postulated Source Term Reductions Affect Emergency Planning?

An important nuclear regulatory issue during the next several years will be the impact of postulated reductions in the quantities of radioactive materials that could be released in a nuclear power plant accident. This matter is commonly referred to as the "source term" issue. While the phrase source term is frequently used in a general fashion, there is a different source term for each specific accident sequence. Recent research has begun to be touted, by some within the NRC as well as industry spokesmen, as mandating a shrinkage in the EPZ radii, if not a virtual abandonment of offsite emergency preparedness requirements.

We believe that the jury is still very much out on the claims that accident consequences have been substantially overestimated in the past because only small quantities of radioactive materials (except noble gases such as xenon and krypton) will escape from a nuclear plant during even the worst accidents. This is a complex issue, and it will require significant scientific research (some of which will be needed to extend the present state of the art) to resolve the extent to which any postulated source term reduction mechanisms will affect a host of accident sequences.

Preliminary results calculated for a limited number of accident sequences at the Surry reactor tend to indicate that, for some sequences, source term reductions (beyond those presently accounted for in accident analysis practice) may be expected. These same results, however, also predict little if any reduction for other accident sequences. Given these tenative results and the uncertainties involved, it is clearly premature to apply overall numerical reduction factors to the accident source terms used in the past.

The recently released "Sandia Siting Study" (NUREG/CR-2239) contained calculations which demonstrate the impact of postulated source term reductions. These calculations show that arbitrary, uniform source term reductions of about a factor of ten will not have a significant impact on emergency planning considerations. Even an overall reduction in accident source terms by a factor of 100 will not eliminate the need for offsite emergency planning and preparedness, although such a reduction if substantiated might result in reductions of the distances for the Plume and Ingestion EPZs. It should be noted that the consequence most affected by postulated source term reductions is early fatalities; other consequences such as latent cancer fatalities and land interdiction distances are less strongly affected.

The Plume and Ingestion EPZ distances were based upon a spectrum of accident source terms. The EPZ distances were also based on a variety of consequences, including early fatalities and injuries, land contamination, and the distances to which the EPA Protective Action Guides (PAGs) might be exceeded. The information currently available on source terms does not support any overall numerical reduction factor. The most likely outcome of the research presently underway appears to be that the source terms associated with some accident sequences will be more strongly affected than others, but that some may not be affected at all. Indeed, the most recent NRC data on the subject indicates that some accident sequences previously found to be important to risk will continue to pose significant hazards (see, e.g., NUREG-0956, draft).

Calculations from the Sandia Siting Study indicate that with an overall reduction by a factor of ten in severe accident source terms, the potential for early fatalities and early injuries would still remain for distances of about five and twenty-five miles, respectively. Even with an overall source term reduction factor of one hundred (which few scientists appear to believe to be credible), early fatalities and early injuries could occur at distances of one and five miles, respectively. [Attached are relevant data from the Sandia Siting Study which address these points.] Moreover, under both reduction factors (i.e., factors of ten and one hundred), latent cancer fatalities would still be statistically detectable for many tens of miles. (Latent fatalities were not considered in the establishment of the EPZ distances.) The EPA PAG dose limits would also be exceeded for many tens of miles.

All that UCS can conclude at this time is that it would be highly premature to base any regulatory action — especially one weakening such an essential element of the defense-in-depth strategy as emergency planning — on the promised results of research that is still incomplete and unreviewed. We recommend that, keeping in mind the sorry history of the Reactor Safety Study, Congress insure that any research on which NRC proposes to base fundamental policy changes is subject to searching peer review by independent experts, unaffiliated with either the Commission or the nuclear industry. (Such expertise is certainly available, because the source term research involves disciplines such as chemistry and metallurgy that are not limited to the nuclear industry.)

VI. How Do Recent Accident Probability Studies Affect Emergency Planning?

The size of the Plume and Ingestion EPZs was first proposed in a joint NRC/EPA report (NUREG-0396, December 1978). This report inextricably linked the size of the EPZs to the results of the Reactor Safety Study.

Following the review of the RSS by the Risk Assessment Review Group in 1978, the NRC Commissioners instructed the Staff generally to avoid using the RSS results without adequately accounting for uncertainties in the probability estimates ("NRC Statement on Risk Assessment and the Reactor Safety Study Report, WASH-1400, in Light of the Risk Assessment Review Group Report", January 18, 1979, page 3). NUREG-0396, however, pays only a passing tribute to this admonition, noting that "there is a large range of uncertainties in these numbers" (NUREG-0396, page I-8).

The authors of NUREG-0396 assumed, based solely on the RSS results, that the overall probability of a core melt for reactors generally is about one in 20,000 per reactor-year. They further assumed (again based solely on RSS results) that the EPZ's PAG doses would be exceeded outside ten miles for only 30% of all core melt accidents. Computing the number of reactor-years of experience at the time (approaching 500 reactor-years), the authors of NUREG-0396 then calculated that the chance of needing emergency response beyond the recommended EPZ distances in the "next few years" was only about one percent (one in 20,000 times 500 reactor-years times 0.3; NUREG-0396, pages I-9 through I-10).

Since the issuance of NUREG-0396 however, more than a dozen additional reactors have been evaluated using the probabilistic risk assessment (PRA) methodology developed in the RSS. Rather than demonstrating that the probability of core melt for reactors generally is about one in 20,000 per reactor-year (as assumed in the RSS), these studies calculated a wide range of core melt probabilities for various reactors.

The quantitative results of these PRA studies (including results of PRAs from two NRC programs and industry-sponsored analyses) show a range of core melt probabilities from one in 500 per reactor-year to one in 50,000 per reactor-year, with an average for the plants studied of about one in 3,500 per reactor-year. Moreover, many of these studies exclude "external events" (e.g., fires, hurricanes, earthquakes, and floods) as potential accident initiators, and thus may underestimate core melt probability. NRC staff testimony presented recently in the Indian Point Special Investigation proceeding shows uncertainty bands on PRA core melt probability calculations ranging from greater than one in 100 per reactor year to below one in 1,000,000 per reactor-year.

In comparison, the NRC Safety Goal for core melt probability is one in 10,000 per reactor-year. Implicit in the core melt Safety Goal, however, is an acceptance of a one in four chance of a core melt accident within the next two decades (assuming, of course, that all plants meet the goal, which the available PRA analyses indicate that they do not).

If one performs the NUREG-0396 calculation in the same manner as it was done originally, using the information from a variety of PRA studies, the results offer a different perspective on the need for emergency planning and preparedness around nuclear powerplant sites. The United States will accumulate about eighty reactor-years of operating experience in each of the next five years. Using this value and the "average" core melt probability of one in 3,500 per reactor-year, the probability of exceeding the PAG doses outside the 10-mile Plume EPZ is one in 3,500 times 400 times 0.3 — or about a 3% chance of an accident in which some emergency response would be needed outside the present EPZs. Since the "average" core melt probability has an uncertainty of at least a factor of ten, this result could range between a 0.3% and 30% chance of an accident requiring some emergency response outside the present EPZs [attached is a table which shows the value of emergency response beyond the present Plume EPZ, even for simple measures such as sheltering].

Even more illuminating is the following. The NRC's core melt Safety Goal is, as mentioned above, one chance in 10,000 per reactor-year. When the results of existing PRAs are examined, however, it is the probability of a major release of radioactivity (equivalent to the PWR-1, -2, or -3 releases from WASH-1400) that has an average probability of about one in 10,000 per reactor-year. Consider that NUREG-0396 was based on the WASH-1400 results, for which the Surry reactor had a probability of a major release of one in 100,000 per reactor-year, and the Peach Bottom reactor had a probability of a major release of one in 142,000 per reactor-year.

Further perspective can be gained from the individual PRA results. For a specific reactor, if the probability of core melt is one in 100 per reactor-year, there would be a 33% chance of a core melt accident at that reactor during its operating lifetime. If the core melt probability is one in 1,000, the chance drops to 4%. If the plant meets the NRC core melt Safety Goal (i.e., one in 10,000 per reactor-year), there will be about a one-half of one percent chance of a core melt accident during the operating lifetime of the plant.

UCS does not accept the PRA results as being accurate. There are several very good reasons for believing that these results underestimate the real risk. These reasons include: (a) the exclusion of external events in most risk estimates; (b) the exclusion of sabotage from all risk estimates; (c) failure to consider "cognitive" operator errors such as misdiagnosis of an accident; (d) results from the Oak Ridge National Laboratory's "Accident Precursor Study" (reported in NUREG/CR-2497) which indicate that PRAs may underestimate the frequency with which human errors result in safety system unavailability; (e) inadequate treatment of "common-mode" failures, which either cause the failure of multiple safety systems or which both initiate an accident and cause the failure of safety systems needed to respond to that accident; and (f) the failure of PRAs to consider design, fabrication, or construction errors, which, given the recent history of quality assurance problems, seems particularly grevious.

Even if one accepts the PRA results at face value, however, they definitely provide no basis for complacency about offsite radiological emergency preparedness. There is a nontrivial chance of one or more core melt accidents occurring at a U.S. commercial nuclear powerplant during the next 12-15 years, and our inability to forecast when and where the accident will occur speaks strongly to the need to assure at the earliest possible date the adequacy of radiological emergency plans and preparedness at all operating reactor sites.

Table 2.6-2. Sensitivity of Fatal, Injury, and Interdiction Distances to Release Magnitude[a]

Source Term	Fatal Distance (mi)			Injury Distance (mi)			Interdiction Distance (mi)		
	Mean	99%[b]	Peak[b]	Mean	99%[b]	Peak[b]	Mean	99%[b]	Peak[b]
SST1	3.9	12	18	11	35	50	19	55	85
1/2 SST1[c]	2.5	10	18	7.0	20	25	14	45	50
1/10 SST1[c]	0.9	2.2	5.0	2.8	10	18	5.5	18	25
1/20 SST1[c]	0.5	2.0	2.0	1.9	7.0	10	3.6	12	18
1/100 SST1[c]	0	1.0	1.0	0.9	4.0	5.0	1.1	10	10

a. Assumptions: New York City meteorology, 1120 MWe PWR, and no emergency response.

b. The 99 percent distances refer are the distances beyond which a consequence is calculated to occur in only 1 in 100 accidents. The peak result is that obtained for the most unfavorable weather sequence sampled.

c. Release fractions reduced for all isotopes except noble gases.

Table 2.5-6. Dependence of Early Fatalities and Early Injuries on Response Distance for Eight Emergency Response Scenarios. Results are Conditional on an SST1 Release

Emergency Response		Response Distance (mi)									
Type	Characteristics	0[a]	5	10	15	25	0[a]	5	10	15	25
		Mean Early Fatalities					Mean Early Injuries				
Evacuation	5 hr delay, 1 mph	3,600	2,100	1,900	1,800	1,800	6,300	6,200	5,300	5,100	4,700
	5 hr delay, 10 mph	3,600	1,600	1,400	1,300	1,250	6,300	6,000	4,300	3,300	2,500
	3 hr delay, 10 mph	3,600	1,200	920	860	790	6,300	5,800	4,000	3,000	2,200
	Summary Evacuation	3,600	1,100	830	780	700	6,300	5,500	3,600	2,700	1,800
	1 hr delay, 10 mph	3,600	440	180	110	40	6,300	4,600	2,500	1,500	700
Sheltering[b]	24 hr relocation	3,600	c	1,200	c	c	6,300	c	4,100	c	c
	12 hr relocation	3,600	c	750	c	c	6,300	c	3,800	c	c
	6 hr relocation	3,600	830	560	490	420	6,300	5,600	3,700	2,700	1,800
		99th Percentile Early Fatalities[d]					99th Percentile Early Injuries[d]				
Evacuation	5 hr delay, 1 mph	18,000	16,000	14,000	12,000	11,000	41,000	41,000	40,000	41,000	28,000
	5 hr delay, 10 mph	18,000	14,000	10,000	9,400	8,800	41,000	40,000	34,000	26,000	10,000
	3 hr delay, 10 mph	18,000	11,000	8,000	7,300	7,000	41,000	40,000	32,000	26,000	10,000
	Summary Evacuation	18,000	11,000	8,300	7,600	7,200	41,000	40,000	33,000	26,000	9,400
	1 hr delay, 10 mph	18,000	7,000	1,400	1,200	1,000	41,000	39,000	30,000	24,000	5,200
Sheltering[b]	24 hr relocation	18,000	c	9,300	c	c	41,000	c	34,000	c	c
	12 hr relocation	18,000	c	7,500	c	c	41,000	c	33,000	c	c
	6 hr relocation	18,000	9,300	5,500	4,900	4,500	41,000	40,000	32,000	25,000	11,000

Assumptions: 1120 MWe reactor, SST1 release, Indian Point population and wind rose, New York City Meteorology.

a. No emergency response.
b. Northeast Regional Shielding Factors.
c. Not calculated.
d. Consequence magnitude equalled or exceeded following 1 out of every 100 releases.

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UNION OF CONCERNED SCIENTISTS' RESPONSE TO
QUESTIONS FOR THE RECORD FROM SENATOR ALAN K. SIMPSON

Q1. I gather from your testimony that you would essentially leave to the States the decision of whether an adequate emergency plan has been prepared and, if not, whether to require a nuclear plant to go to shutdown.

(a) Does this mean that a state could decide to shut down a plant, even though an emergency plan has been prepared that meets the NRC's requirements?

(b) According to your testimony, "responding to emergencies is fundamentally a state responsibility." Does this mean that if a state chose not to prepare and implement an emergency plan, simply because it did not feel that the risks of nuclear power are great enough to justify the expense of an emergency plan, that you would be prepared to defer to that state decision, as well?

(c) If, for instance, a nuclear powerplant has a ten mile emergency planning zone that covers 21 different townships--each of which must agree to implement an emergency plan for it to be effective--would you support suspension of the operating license for that facility if only one of the 21 townships determined not to implement the emergency plan, and the state refused to undertake the town's responsibilities?

(d) If, as you argue, an emergency is essentially only a state and local responsibility, would you support elimination of any present federal requirement that utilities are to have emergency plans in place? Would you support elimination of all NRC and FEMA requirements that now govern what must be included in an emergency plan?

A1. (a): This question centers on the respective roles of the federal government (acting through the Nuclear Regulatory Commission), the operating utility or applicant, and the affected State and local governments in offsite radiological emergency response to accidents at commercial nuclear reactors.

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The Nuclear Regulatory Commission's radiological emergency planning and preparedness regulations are quite clear:

> "No operating license for a nuclear power reactor will be issued unless a finding is made by the NRC that the state of onsite and offsite emergency preparedness provides reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency." [10 C.F.R. 50.47(a)(1); 45 Fed. Reg. 55402, 55409, August 19, 1980] (emphasis added)

This general requirement is supplemented by sixteen specific standards which must be met by onsite and offsite radiological emergency plans and preparedness. Thus, the regulations clearly require both an adequate "paper" plan and the demonstrated capability to implement that plan. (Any proposal to separate the NRC and FEMA review of the plan's implementation from their review of the plan itself, or to remove the issues of implementation from the licensing process, would in our view represent a major step backwards from the current regulatory requirements.)

As we noted in our prepared testimony, most core melt accidents progress very quickly once the reactor core is uncovered, and as a result protective actions must be taken promptly in order to maximize the benefits of such actions to the general population. Thus, building upon the historical responsibility of State and local governments for emergency response to a variety of man-made and natural hazards, an effective emergency response to commercial nuclear reactor accidents will as a practical matter depend strongly on local capabilities. This is particularly true for the category of short time-scale accidents that involve by-pass or early failure of the reactor containment.

Under the NRC's regulations the nature of the entity that provides or directs the emergency response is theoretically irrelevant. In practice, however, the State and local governments play a critical role. As we outlined in pages 6-11 of our prepared testimony, we do not believe that, in reality, any licensee can effectively carry out either the State or the local emergency response functions. Nor, in all likelihood, can FEMA or any other federal agency fill this gap. To the extent that question 1(a) centers on the availability of a paper plan, rather than the assessment of whether that plan can be actually implemented, it seriously misunderstands the nature of the federal/state/local cooperation that the emergency preparedness requirements demand.

It is impossible to argue (and we do not understand anyone on this Committee to take the position) that State and local readiness is not an essential element of public protection. Hopeful assurances that, when the time comes, the responsible local officials will "do their duty" are not enough. Without an agreed-upon, fully tested emergency plan, and the training and advance preparation necessary to assure that the plan will be properly implemented, even the most dedicated public servants will not be able to rise above the level of confusion that attends any unexpected and dangerous event.

To sum up our position: if, as we believe, any effective requirement for emergency preparedness around commercial nuclear powerplants depends upon the ability and willingness of the State and local governments to bear the primary responsibility for accident response, then such a requirement will necessarily imply some State control over the operation of any such powerplant. This possibility -- that a plant could be shut down because of State or local failures in emergency preparedness -- was well-understood by the NRC when it promulgated its emergency planning regulations in the wake of the Three Mile Island accident. From the nuclear industry's viewpoint this may be a harsh fact of life, but it is an inescapable one -- and it should be dealt with directly, rather than glossed over through the plenary exercise of federal legislative authority.

The issue of State or local "veto" is a rhetorical distraction from the fundamental question that should occupy this Committee: whether the people in the vicinity of nuclear powerplants will receive the maximum feasible protection from the effects of a severe accident. Unfortunately, this Committee's questions reveal more concern about mythical "licensing delays" and atypical local "abuses" than about the very real emergency response problems that accompany the location of nuclear powerplants in such heavily populated areas as Long Island, southern New Hampshire, and eastern Pennsylvania.

In the case of the Shoreham nuclear plant, the relevant county authorities have concluded, after extensive evaluation and analysis, that adequate preparedness simply cannot be assured in the event of a radiological emergency. As a result, Suffolk County determined by a formal resolution that it will not adopt or implement a radiological emergency plan. The State government is now considering the extent to which it will accept that finding.

In our view, the appropriate federal role is not to assure that, at all costs, Shoreham is allowed to operate. Whatever remains of the Atomic Energy Act's goal of promoting the growth of commercial nuclear power, that goal hardly justifies the brusque overruling of serious, well-founded local reservations about the ability of the area's citizens and institutions to deal with an emergency. There is no power shortage in the New York area, now or in the forseeable future, that would justify federal intervention. Congress is not here to protect Lilco's investment. (As our testimony indicated on page 9, the state government -- particularly the Public Service Commission -- will ultimately decide how to allocate the costs if Shoreham does not operate; this is hardly an area that the federal government has preempted.)

(b) and (d): Question (b) postulates a situation in which a State, after appropriate evaluation and analysis, concludes that the risk posed by accidents at a particular nuclear plant are inadequate to justify the expense of preparing and implementing a radiological emergency plan. Again, as with Suffolk County and Shoreham, the State in this hypothetical case can bring its reasoning and conclusions before the NRC. In either case, however, the role of the NRC is the same -- in order to issue a license or permit continued operation, the NRC must make the findings called for under its emergency planning regulations. The NRC's decision is, of course, subject to judicial review upon appeal by any party, including the utility, State or local governments, and intervenors.

We reaffirm our conclusion that emergency response is essentially a State and local government responsibility. We would not, however, support elimination of the NRC and FEMA radiological emergency planning and preparedness requirements. There must be a common understanding, between the utility and the organizations handling offsite response, of the procedures and decision criteria to be followed in responding to a radiological emergency. Utility emergency plans are essential to the protection of public health and safety since it is the utility which is the source of a warning in the first instance that an accident is taking place. Offsite plans are also essential because they are the primary means of implementing protective actions.

Inasmuch as NRC has concluded that its statutory responsibilities for the protection of the public health and safety cannot be met without reasonable assurance that protective measures can and will be taken in the event of a radiological emergency, elimination of NRC emergency planning and response standards is unwarranted. In view of FEMA's special responsibilities for offsite response, elimination of FEMA's emergency planning and response requirements is similarly unwarranted. (As a practical matter, the NRC and FEMA requirements regarding offsite planning and response are identical due to the joint issuance and acceptance of the specific plan preparation and review criteria, and the identical language in NRC's regulations at 10 C.F.R. 50.47 and in FEMA's proposed regulations at 10 C.F.R. 350 for the sixteen specific standards which radiological emergency plans and preparedness must meet.) In sum, setting minimum standards for emergency preparedness is an appropriate federal role which should not be abandoned.

(c): The decision to suspend a facility license is left to the NRC. It is plausible, under this question's postulate, that the NRC would be justified in suspending operation. Such an action must, however, be based on the specific circumstances at the site in question. The key decision-maker is the State, because it is the only other entity that can conceivably fill the gap left by the town. If it cannot or will not undertake the town's responsibilities, then the NRC and FEMA will have to decide how serious the gap is.

Q2. (a) Should a local government be able to demand, as a prerequisite to its agreeing to cooperate in emergency planning, that the utility agree to assist in the preparation of an emergency plan that goes beyond the requirements established by the NRC? For instance, should a county be able to insist on a twenty mile emergency planning zone?

(b) Should a local government be able to demand that the utility agree to certain requests that are totally unrelated to emergency planning, such as a full, independent safety inspection of the plant, or a member on the utility's safety review board, or the construction of a simulator, all as conditions on the county's willingness to sign off on an emergency plan?

(c) Should a local government be in a position of being able simply to assert that an emergency plan cannot be prepared, and thereby prevent the utility from seeking an independent adjudication of that issue before an NRC board, as Suffolk County has insisted?

(d) Do you support the position of Suffolk County that this operating license proceeding should be terminated, based only upon the county's finding, with no independent review of that finding that no emergency plan can protect the public health and safety?

(e) Does the current emergency planning process essentially confer the authority raised in these questions on a county, and if a county chooses to abuse the process, is there any recourse for a utility?

A2. (a): No local government is in a position to demand anything as a prerequisite to participation in the emergency planning process, any more than an applicant or licensee can make such demands. The planning process is a cooperative venture; any attempt by either party to run roughshod over the interests of the others will result in the breakdown of the process.

As NRC and FEMA jointly pointed out, their emergency planning zone (EPZ) criteria "reflect minimum standards" [NUREG 0742/FEMA REP 4, p. III-6]. In our view, turning these minimum standards into regulatory straightjackets, which limit the steps that local governments can take to protect their citizens, exalts uniformity above safety and represents an unwise departure from the purposes behind the emergency preparedness requirements. The Atomic Energy Act should not be read to preclude state authorities from taking a more conservative approach when they conclude that local conditions make such an approach necessary.

In our view, a solid case can be made to support radiological emergency planning and response activities outside the 10-mile Plume Exposure Pathway EPZ established by the NRC. The bases used by the NRC to justify the 10-mile Plume EPZ were limited to "expected" consequences (in terms of early fatalities and exceedance of the Environmental Protection Agency's "Protective Action Guide" [PAG] doses) of core melt accidents [NUREG-0396; NUREG-0654].

In the case of Suffolk County, its proposed Plume EPZ dimensions were based on a detailed technical study of radiological emergency response. As the State of California did previously, Suffolk County chose a more conservative criterion for radiation exposure upon which to base its Plume EPZ boundaries than that employed by the joint NRC/EPA Task Force on Emergency Planning which authored the report [NUREG-0396] upon which the NRC/FEMA Plume EPZ dimensions are based. The NRC's criterion was effectively a 30% chance of exceeding the EPA's 5-Rem whole-body upper-bound PAG value; Suffolk chose a 1% chance of exceeding a 30 Rem whole-body dose given a core melt. Suffolk County also considered the impact of emergency response on latent cancers, something which the NRC/EPA Task Force report ignored altogether.

(b): This question asks whether local governments should be able to demand utility acceptance of certain requests which are "totally unrelated to emergency planning". As we noted in our testimony, such requests in the case of Shoreham were made in the confines of the NRC's licensing process, a process to which both LILCO and Suffolk County are parties. The Atomic Safety and Licensing Board in that case will in due course rule upon these issues. It seems unlikely that, if the ASLB rules in LILCO's favor, the NRC would allow LILCO to be held hostage to the very same demands in order that the emergency plans for Shoreham be approved. In any case, if either party is aggrieved by the ASLB decision (and by the subsequent Commission ruling thereupon), the decision may be appealed to the U.S. Court of Appeals.

Looking behind the legalities, however, the Suffolk County requests reflect a finding of "no confidence" in the NRC's safety reviews and inspection program that should give rise to some concern by Congress, rather than being simply dismissed as demands "totally unrelated to emergency planning". Public officials — on the state and local levels no less than the federal -- generally do not make irrational demands. This Committee should be just as sensitive to what these requests say about the NRC's performance as it appears to be to the possibility that such requests will hinder Shoreham's licensing.

(c): As to the issue of whether a local government can "simply . . . assert that an emergency plan cannot be prepared" and prevent the adjudication of the issue before an Atomic Safety and Licensing Board, the underpinnings of such a position will be explored by the NRC, either before the ASLB or at the Commission level. In the Shoreham case, Suffolk County did not "simply" announce its position; rather, the County commissioned a detailed, scholarly, and costly study of emergency planning around Shoreham. After extensive deliberations, the County legislature ultimately concluded that an adequate radiological emergency plan could not be prepared for this particular site. This is a far cry from a hypothetical situation in which a county arbitrarily refuses to participate in the emergency planning process.

(d): We have expressed no views on the merits of Suffolk County's position in its motion to terminate the Shoreham licensing proceeding. As you know, the NRC has rejected the County's claim that its refusal to participate acts as a de jure bar to further licensing, but the ASLB will consider whether the County's action presents a de facto failure of emergency preparedness. We believe the latter is the central question that must be answered. In any event, neither Suffolk nor LILCO will be without a forum in which to plead its case, and it is unlikely that this matter will be resolved until all appeals, by one or both parties, are exhausted.

(e): Procedurally, the recourse for an aggrieved utility is the ASLB in the first instance, through the NRC appellate process, and subsequently to the federal courts. Depending upon specific state statutes, the utility may have recourse in the state courts as well. These avenues of recourse are the same for the utility as they are for the county or any other party to an NRC licensing proceeding.

Substantively, under most state laws of which we are aware, counties and towns are subject to state governance. The State can, through legislative or administrative action, supervise and if necessary overrule the decisions made by a unit of local government. Because of this basic legal rule, because the State has the economic duty to balance the need for power and its costs, and because the coordination of emergency response is also a state responsibility, we believe that the State is the logical unit of government to act in these situations.

Given this array of responsibilities, there is no credible reason to believe that the States will "choose to abuse" their authority. At a very minimum, the States will feel less need than the NRC currently does to protect the nuclear industry, and thus can be expected to arrive at more balanced decisions.

Q3. You argue extensively in your testimony that the emergency planning provision adopted by the *Senate* in 1980 essentially allows the State or local veto that you support. But don't you then ignore the fact that the *Senate provision was changed substantially in conference*, and in fact, the conferees specifically agreed to the option of a utility plan to *avoid* the possibility of a State or local veto?

A3. We understand the changes made by the conferees in 1980. However, the provision first enacted then is due to expire at the end of this fiscal year, and the wisdom of its extension or modification is being reexamined.

In our view, the utility plan option, as authorized in the last two NRC authorization acts, may reduce the possibility of a state or local veto but does not eliminate it -- at least in the *de facto* sense. This result obtains because, as our testimony and the responses to questions of both the NRC and FEMA witnesses stressed, a utility plan cannot effectively guarantee an adequate level of preparedness; thus the state or local government's failure to adopt a satisfactory plan may still be decisive.

We believe that Congress can benefit from the experience gained in devising and implementing emergency plans since 1980, particularly the vastly increased appreciation of the difficulties inherent in areas of high population density. Most of all, Congress should not shrink from the fact that an adequate level of emergency preparedness may be impossible at certain sites. If the inevitable result is the shutdown of a powerplant, Congress should not interpose itself as a court of last resort to prevent that from happening -- especially in a way that would signal a retreat from the goal of effective emergency planning that was widely accepted after TMI.

Nor should Congress water down the standards that apply to all plants in order to assure the survival of one or two. At most sites the licensee has been able to establish an effective working relationship with the appropriate local officials, pursuant to the division of authority implied in the current regulations. The Committee should carefully assess the impact that any weakening of the State and local officials' legal authority would have on the degree of cooperation between those officials, the federal agencies, and the licensees. As we emphasized at your April 15 hearing, changing the law to resolve two very hard cases is likely to make bad law indeed.

TESTIMONY BY DON GODARD
OREGON DEPARTMENT OF ENERGY

April 15, 1983

BEFORE THE NUCLEAR REGULATION SUBCOMMITTEE
OF THE SENATE ENVIRONMENT AND PUBLIC WORKS COMMITTEE

Introduction and Summary

Mr. Chairman, I am Don Godard from the Oregon Department of Energy. Oregon appreciates the invitation of the Subcommittee to comment on emergency response planning for nuclear power plant accidents. You have asked five specific questions to which we have responded in the attachment. The following provides a context for our answers.

Oregon believes that it has a workable emergency response plan which has been developed in the context of the existing framework. Therefore, from our perspective no changes are needed. However, we have experienced some problems and are aware of others which could be addressed by the federal government. From the federal perspective the following steps would be appropriate:

- set basic preparedness requirements which utilities must meet with or without state or local government assistance, and
- direct that federal agencies work not as regulators of but as partners with state and local governments.

Background

I am a chemical and nuclear engineer by training and experience. Since serving four years on Admiral Rickover's staff at the Navy Nuclear Propulsion Program, I have managed Oregon's program for regulation of activities related to commercial nuclear power plants. I am Oregon's Nuclear Regulatory Commission (NRC) liaison officer, Oregon's designee to the Pacific Northwest Low-Level Radioactive Waste Compact and Governor Atiyeh's representative on the National Governors Association Subcommittee on Nuclear Power.

Oregon has one operating nuclear power plant, Trojan, operated by Portland General Electric (PGE). About 70,000 people live within a 10-mile radius of Trojan, 60,000 of whom are in the towns of Kelso-Longview, Washington. Trojan is situated near the Columbia River, the border between Oregon and Washington states, and is 35 miles from Portland. Portland has Oregon's largest metropolitan population, about one million persons. My comments relate to our experience in the context of the Trojan plant. Application of these comments to other plants should recognize the differences in the size and nature of surrounding populations.

Oregon has taken an active role in the oversight of the Trojan Nuclear Plant starting before initial operation in 1975. We have had nuclear engineers on staff and since 1980 Oregon has had a full time resident engineer at the plant. Oregon has performed radiological monitoring by collection of environmental samples in the vicinity of the plant since it was under construction. Radiation levels measured at the plant are sent by telemetry to the State Capitol where they are continuously recorded. Day-to-day working relationships have been developed with the plant personnel and utility management. A memorandum of understanding has been developed between Oregon and NRC for operating nuclear power plants. One of the state's nuclear engineers is on call 24 hours a day to respond to any alarms of the radiation detection equipment or calls from the utility.

Oregon has placed a premium on prevention of accidents as an integral part of emergency response planning. Effective accident prevention and emergency response planning both require unambiguous assignment of responsibilities. Currently the resources for safe nuclear power plant operation are widely disbursed among the reactor designer (e.g. Westinghouse), architect engineer (e.g. Bechtel), NRC, Institute for Nuclear Plant Operation (INPO), the plant personnel and utility engineers. This decentralization of resources can allow responsibility to be poorly defined and accepted. We have worked with utility management to ensure the company has all the needed policies, practices and procedures to fulfill its responsibility to use the various resources at the proper time. Oregon has held annual exercises and evaluations of the Trojan Emergency Response Plan since before Trojan began operation.

In the month following the accident at Three Mile Island, Governor Atiyeh personally led a joint effort by Oregon, Washington State, Federal Emergency Management Agency (FEMA), Columbia and Cowlitz Counties and PGE to upgrade our emergency response planning. We have been told by FEMA that the direction set by Oregon formed the basis for federal requirements in NUREG-0654 "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants." Oregon's revised plan was provided to FEMA in April 1980, before FEMA guidance was adopted. Oregon's plan was one of the first approved by FEMA, in 1982.

We believe that the combined plans of Oregon, Washington, the adjacent counties and PGE will ensure that the potentially affected public will be notified and provided consistent guidance and assistance during an emergency. Further, the interested public will be informed of events at and near the plant. We continue to scrutinize our effort to make improvements. The close cooperation of Bart Withers (PGE), John DeFrance, (Columbia County), Ben Bena (Cowlitz County), Dick Donovan (FEMA X), Jim Thomas and Terry Strong (Washington) have made this possible.

The First Responsibility for Emergency Response Planning is the Utility's

Because risk of injury to the public is created by the utility which operates a nuclear power power plant, the utility has the first responsibility to protect the public in the event of an accident. Oregon believes that to fulfill its responsibility the utility should ensure certain basic functions are performed either by itself or by state and local government. We note that assignment of such responsibility is unique. For example, despite dam failures, fatalities and reports of defects, dam operators are not required to provide emergency response planning. Similarly, carriers of hazardous materials are not required to provide emergency response capabilities along transportation routes.

Oregon believes that the basic functions for which the utility would be responsible could be limited to providing 1) a siren system (or equivalent) that ensures the public will be alerted to an incident, 2) educational material so people know how to get specific instructions during an incident, 3) a procedure, such as use of local radio stations, to provide specific instructions to the public, and 4) a means for the public to evacuate which could range from reliance on private vehicles to providing drivers and buses. These are the only actions needed to protect the public's health and safety. All other actions are performed only to accomplish the same steps, but with greater finesse. If the utility were the only entity involved, emergency response planning would be relatively straightforward. The complexity arises when many organizations participate - several states, counties, and the federal government, each with several agencies.

In recognition that it licensed nuclear power plants, the federal government may wish to adopt the basic functions identified above as requirements which utilities must meet. If federal requirements are appropriate, the requirements should be placed on the utility, not on state or local government. As discussed later, setting regulations for state and local governments is not appropriate.

Holding utilities responsible for providing certain basic emergency response functions relies on the utility deciding 1) when the notification system should be activated, 2) what instructions should be given to persons near the plant, and 3) what information should be released to the general public. The various levels of government have the responsibility to decide whether they wish to rely on the utility to make these decisions. The leaders of the state and local governments, being elected officials, will represent the preferences of the public. If the community is comfortable with relying on the utility, nothing further is needed beyond the utility performing the basic functions identified above. On the other hand, if the community wants to participate, it should have that option.

Oregon believes it can ensure that the utility does its part without any federal requirements on either the utility or state. However, setting these basic requirements on the utility may be necessary to protect the public health and safety where states (or local governments) do not take an active role. Additionally, the utility may view such requirements on utilities by the federal government as desirable because the requirements would set limits on the utility's obligations.

The Ultimate Responsibility for Emergency Response Planning Belongs with the States

Oregon believes that the overall responsibility for emergency response planning belongs to the state. The state should define the specific responsibilities of the local governments, state agencies and the utility. As discussed above, a state may choose to exercise its responsibility by deferring to the utility. Local governments do not have the resources to develop the requisite technical expertise for analyzing the implications of a nuclear plant incident and the federal government is too far removed physically.

Oregon consistently has taken the position that the states should be allowed to and should accept greater responsibilities vis-a-vis the commercial nuclear power industry. Oregon has filed an amicus brief in the U.S. Supreme Court in Pacific Gas and Electric vs California Energy Commission arguing that states can prohibit construction of nuclear plants if that is the policy of the state. Oregon supported the adoption of the Low-Level Radioactive Waste Policy Act of 1980 which established regional compacts between the states as the mechanism for sharing the burden of low-level waste disposal. Oregon was instrumental in the creation of the Pacific Northwest Compact which is now before Congress for adoption. Similarly, Oregon supported a state veto of high-level nuclear waste repositories. Having argued for greater responsibility for the states, Oregon will meet these responsibilities.

Oregon believes that important decisions affecting the public safety should be accomplished cooperatively with the utility. Because of our day-to-day working relationship with the utility, our on-site resident engineer and telemetry monitoring equipment, we are confident that we will learn of abnormal conditions at the plant and that notification systems will be activated in a timely manner. Oregon's nuclear engineers and their knowledge of Trojan provide assurance that the Governor will be advised when plant conditions have deteriorated to an unacceptable level. It is not appropriate to wait until releases of radioactivity have occurred to make protective action decisions. Further, because more than one organization is involved, considerable attention has been given in Oregon's plans for coordinated decision-making and public information efforts with Washington State, the counties, the utility and federal agencies. Dedicated communications connect the states, utilities and counties. Finally, for the Trojan plant, the state and local government need only assist traffic flow during an evacuation because most people will use private cars and know which roads lead away from the plant.

Funding to support the state's efforts is provided by a state imposed assessment on the utility. Continued funding is needed to maintain plans and equipment, conduct training and perform annual exercises. Annual exercises do not have to involve field response personnel, such as state police, which by the day-to-day nature of their responsibilities maintain response capabilities. It is more important to exercise the various decision-making procedures. Where states accept responsibility for emergency response planning they should be free to decide how they will carry out those responsibilities. Where states do not choose to participate, the utility would perform the basic functions needed to protect the public health.

The Federal Government Should Work with and not Attempt to Regulate States

The implications of states accepting responsibility for emergency response plans is that the federal government should minimize or eliminate requirements placed on the states and local governments. The alternative is for the federal government to accept responsibility and provide emergency response capabilities around nuclear plants.

The current direction of the federal government, through FEMA, is to set more and more specific requirements for state and local emergency response plans. The ultimate outcome is that no discretion will be left to states and local governments. At some point the responsibility for emergency response planning will have shifted to the federal government which sets the requirements. FEMA began with 16 planning standards (44 CFR 350.5) which were expanded to 200 "evaluation criteria" (NURFG-0654). We have seen drafts of "acceptable criteria" which expand on the "evaluation criteria" and may result in hundreds of additional requirements. If the federal government wants to write the emergency response plans it should do so. Otherwise, it should minimize its regulations.

Although FEMA has agreed with Oregon emergency response plans, difficulties have arisen during annual exercises because FEMA acts as a regulator of the state and local governments rather than as a participant in the overall response. For example, during our emergency response plan exercises, federal observers have criticized state, local and utility performance based on the observers' preferences rather than on conformance with established procedures. Further, federal participation in Trojan exercises was minimal until last year.

The federal government can best assist the states and local governments fulfill their responsibilities by providing information, not regulations. Oregon has found the FEMA class titled Radiological Emergency Response Course to be most helpful in this respect. The course provides actual hands-on experience with radiological controls. However, access to the course is very limited. In the past three years Oregon has been allocated a total of 4 positions.

Federal Response During an Accident Should Be Limited to Specific Tasks

During its planning efforts, Oregon assumes that it will make protective action decisions and carry out any evacuation before representatives of the federal representatives arrive at the plant. Therefore, Oregon relies on its own resources to perform these tasks. However, it is more likely that decisions and evacuation could occur over a longer time in which case federal representatives could reach the site. We are concerned that arrival of these representatives will disrupt Oregon's efforts.

In two specific instances, we can foresee a legitimate and useful role for the federal government. NRC could assist with the interpretation of the plant status. This effort would have to occur at the site and be performed by individuals with detailed knowledge specific to Trojan. Also, the U.S. Department of Energy could provide additional personnel to assist with off-site radiation monitoring so long as this effort is coordinated with established state and utility efforts. Federal agencies such as FEMA, USDA and EPA should resist their instincts to go to the plant site except as specific needs are identified. Once the recovery and re-entry phase begins, a broader role for other federal agencies would be appropriate.

We have specific concerns with several actions by federal agencies as follows:

- NRC has been unwilling to assign a technical spokesperson to assist the Governor at the state emergency operation centers. Because the Governor, in Oregon's case, makes protective action decisions, it is important for him to have direct access to an NRC spokesperson who is technically oriented.

- NRC apparently intends to perform off-site radiation projections independent of the coordinated state-utility effort. This creates the possibility of conflicting projections without an explanation. NRC should participate with state-utility personnel so that differences can be resolved or explained.

- FEMA apparently intends to have its decision-makers at the plant. Given that FEMA's stated purpose is to assist the states, its decision-makers should be located with the state's decision-makers. States typically operate from established emergency operations centers at the state capitols.

- Federal public information efforts coordinated by FEMA are not conducted in a manner that is supportive of state efforts. FEMA proposes to center public information efforts at a location separate from the state's spokespersons. Because the Governor will be making protective action decisions and explaining those decisions to the public, it is more appropriate for FEMA to co-locate its public information efforts with the Governors.

Questions from the Subcommittee and Oregon Response

1. "Has the joint NRC-FEMA process for review and approval of emergency response plans for (i) operating reactors, and (ii) reactors under construction, functioned effectively? What changes, if any, would you recommend in the existing administrative or legislative framework to improve the process?"

   Yes, Oregon believes that the current federal review process for emergency response plans has functioned effectively. However, this process which imposes federal requirements on state and local governments has worked only because Oregon concluded independently that actions similar to the requirements were appropriate. To the extent that state or local governments do not agree with federal direction the current process will not be effective.

   The federal government should modify its approach by acting as an equal partner with the states and local government rather than acting as a regulator. The federal government should help develop a consensus for an approach between the various participants rather than trying to impose a particular approach. If any requirements are to be set by the federal government to achieve a minimum level of performance the requirements should be placed on the utility rather than on the states. See response to question 5.

2. "Are you satisfied that existing arrangements for the funding of emergency planning and preparedness provide an equitable means of financing State and local costs reasonably related to the preparation and implementation of emergency preparedness plans? What changes, if any, would you recommend in the current approach?"

   Yes, Oregon is satisfied that existing arrangements for funding emergency response planning and preparedness are equitable. Currently, funding is provided by an assessment, set by Oregon law, on the utility. While Washington State has made a separate agreement with the utility it is possible for the "host" state to pass funding on to the adjacent states. In our particular situation the utility has agreed with the level of assessment. It may be appropriate for the federal government to establish some mechanism for establishing appropriate funding levels where agreement between the state and utility cannot be reached.

3. "Are you satisfied that the existing approach by FEMA for identifying and correcting deficiencies in emergency preparedness plans is adequate and provides a reasonable degree of assurance that any deficiencies can and will be identified and corrected?"

Yes, (with some qualifications) Oregon is satisfied with FEMA's approach for identifying and correcting deficiencies. Annual exercises and critiques are appropriate means for identifying and correcting deficiencies. The annual exercises do not need to include field response participants but should test the decision-making process by activating each of the federal, utility, state and local government emergency operations centers (or equivalent).

FEMA needs to improve its critique techniques. First, FEMA observers need to be more familiar with the state's written plans and procedures. This will reduce past problems where federal observers expressed their personal preferences rather than evaluating whether the procedures were followed. Second, federal participation in exercises has been minimal until last year. Additionally, where the federal agencies have participated their performance has not been evaluated. Third, federal observers have been reluctant to discuss their observations with participants. As a result federal conclusions may be based on misinterpretation of observations made during the exercise. Finally, the manner in which federal results are presented is reflective of a regulator rather than a participant. Rather than presenting a report card of state and local government performance, federal agencies should join state and local government in identifying steps which will be taken to improve response planning.

4. "What steps have been taken by NRC and FEMA to ensure, and what degree of confidence do you currently have, that State, local, and utility emergency preparedness plans will, in fact, be carried out in the event of an emergency?"

Oregon has high confidence that the emergency response plans in Oregon will be carried out in an emergency. If anything, Oregon is concerned that a "hair-trigger" mentality has been created by existing federal requirements. The threshold for initiating off-site responses is set at a very low level - perhaps too low.

The basic functions of the response to a nuclear power plant accident are straightforward -- use sirens to alert people, use commercial radio to provide instructions, provide traffic control and where necessary provide assistance to evacuees. The most difficult functions are coordinating and communicating the decision-making of various organizations. It is possible that the various jurisdictions around a nuclear plant will make evacuation decisions at different times and that the media will be given conflicting or inconsistent information by the different organizations. While it is important to try to avoid these problems, if they occur they should not adversely affect efforts to protect the public.

5. "Can a utility emergency response plan fully compensate for the failure, inability, or refusal of a State or locality to develop or implement an adequate emergency response plan? Please explain."

Yes, Oregon believes that a utility plan can fully compensate for inadequate state or local plans. State and local governments have no unique capabilities or resources which cannot be obtained elsewhere by the utility. Additionally, jurisdiction of the state and local governments may be limited. However, state and local governments can provide public credibility which may be difficult for a utility. However, if the state and local government choose to allow the utility to make important decisions during an accident, that should be their option. Utility conformance with basic federal requirements (see response to question 1) will provide assurance that evacuations can be accomplished.

VICTOR ATIYEH
GOVERNOR

Department of Energy

LABOR & INDUSTRIES BUILDING, ROOM 102, SALEM, OREGON 97310 PHONE 378-4040

May 10, 1983

The Honorable Alan K. Simpson, Chairman
Subcommittee on Nuclear Regulation
Committee on Environment and Public Works
United States Senate
Washington, D.C. 20510

Dear Senator Simpson:

Your letter of April 21, 1983 requested responses to additional questions related to emergency planning and preparedness at commercial nuclear power plants. My responses are attached.

Heretofore, we have focused on the question of whether a utility plan could compensate for shortcomings in state and local plans. Perhaps federal resources should be used to protect the public health. After all, FEMA's role is to support state and local governments when their resources are not adequate.

As I mentioned at the April 15, 1983 hearings, Oregon has taken an active role both in emergency response planning and accident prevention. I would like to take this opportunity to express our concern over the existing management structure that relies on an administrative committee to regulate nuclear plant operation. We agree with the Kemeny Commission's recommendation that the NRC be headed by a single administrator (page 22 and 61).

Making such a change immediately following TMI would have been disruptive. However, now would be an appropriate time. The major decisions on the post-TMI Action Plan have been made and the predominant NRC role has changed from licensing new plants to regulating existing plants. More than ever, a strong management system is needed to ensure attention to the many small details of safe plant operation.

Perhaps this is an issue which could be addressed in the licensing reform bills (S. 893 and S. 894).

Sincerely,

Don Godard

Donald W. Godard, Administrator
Siting and Regulation Division

Hearing on Emergency Planning and Preparedness
Subcommittee on Nuclear Regulation
April 15, 1983

Response of Mr. Don Godard
To Questions by Senator Alan K. Simpson

1. "You and Mr. Doran Hughes both suggested in your testimony that the FEMA process for identifying and correcting deficiencies in emergency plans may not be entirely acceptable. In your words, 'federal conclusions may be based on misinterpretation of observations made during the exercise', and in Mr. Hughes' words, 'the persons identifying the deficiencies seem unsure of what they are looking for.' In those instances where FEMA has identified deficiencies in your plans, have you in fact agreed with their conclusions; do their recommendations always, in your judgment, result in an improved emergency plan; and is it possible that FEMA's shortcomings in this area may be leading to the identification of more deficiencies than might in fact exist?"

Oregon has not always agreed with FEMA conclusions and recommendations. Disagreements arise because 1) FEMA may evaluate an exercise based on its preferences rather than the direction provided in the state and local plans, 2) FEMA may not have observed actions that it believes should have occurred, 3) the responsibilities for shortcomings may be improperly assigned, 4) FEMA does not evaluate federal performance, and 5) the FEMA evaluators are not intimately familiar with the state and local plans.

The first four problems could be avoided or resolved if FEMA and its observers met with participants after the exercise to discuss and define the actual actions taken during the exercise. Currently, FEMA reaches its conclusions without a give-and-take discussion with the exercise participants. Such discussions do not occur because FEMA believes that as a regulator, it cannot compromise its independence from the regulatee, i.e. the state and local governments.

Because of these shortcomings, FEMA critiques do not accurately reflect the detailed problems encountered during an exercise and their underlying causes. Nonetheless, FEMA can draw valid conclusions about fundamental issues such as decision making (decisions are timely or are not) and whether protective measures would be implemented (public notification occurs or it does not and resources required to assist with evacuation are adopted or not). In most cases, these fundamental conclusions are easily drawn. The shortcomings in FEMA's critiques occur in the details of emergency response which should be done right, but are not determinative to an effective response.

2. "You indicated in your testimony that 'the threshold for initiating off-site responses is set at a very low level -- perhaps too low.' Are you suggesting that the Federal requirements may, in fact, be far too conservative in the offsite actions called for, and that, as a result, for those sites that currently comply with these requirements, they may be required to take more compreheneisve, or earlier, protective action than you think should be required?"

Oregon believes that the potential for overacting to incidents at nuclear plants may be high because federal guidance, which is interpreted as federal requirements, does not properly reflect the significance of plant conditions.

For example, the threshold for notifying all emergency response agencies is set too low and required in too short of time. Notification of state and local agencies for "unusual events" is required within 15 minutes. Unusual events are defined to be incidents which do not affect the public health and safety such as transport of a radioactively contaminated and injured person to the hospital. Appropriate regulatory agencies should be notified, but there is no need to notify all emergency response organizations. Further, 15 minutes does not allow sufficient time for the reactor operator to complete any significant investigation of the incident. Notification within an hour with better information would be more helpful to the regulator.

Another example is that plant condition (i.e. the nature of an accident) is used to categorize an accident which in turn requires various levels of activation of state and local emergency response personnel. However, once activated, protective actions for the public are not associated with plant conditions. For example, plant accidents such as radioactive gas storage tank ruptures, fuel handling accidents, steam generator tube ruptures, and steam line breaks would not result in any significant off-site consequences. However, accidents involving core melting with loss of containment integrity create a significant threat. Unless state and local decision makers understand these distinctions, the conservative response will be to overreact. By developing its own expertise related to nuclear plant operation, Oregon can develop protective actions consistent with the threat. Other states and local government will need assistance from NRC or the utility.

To develop greator assurance that the reaction to a nuclear plant accident is consistent with the risk, Oregon recommends the following:

a. Eliminate reporting by utilities to emergency response agencies, but not regulatory agencies, of incidents which do not significantly reduce plant operating safety margins.

b. Allow more complete evaluation of emergencies before reporting of emergencies which do not create or lead to a significant impact on public health and safety.

c. Develop comprehensive protective action guidance based on accident type and plant conditions.

3. "You note in your testimony that 'where States do not choose to participate, the utility would perform the basic functions needed to protect the public health.' I gather than, in your mind, there are instances in which a utility could perform these functions, and do an effective job. Could you expand on this point?

Protection of the public health and safety during a nuclear plant accident requires 1) sirens to notify the public that an accident has occurred, 2) educational material so people know where to obtain additional information, 3) a radio station to broadcast instructions, and 4) traffic control assistance to ease the flow of private vehicles and/or transportation assistance in the form of buses.

The experience at TMI illustrates that many (50 percent) people will evacuate based on information alone regardless of official recommendations or evacuation assistance from government or utilities. Therefore, assistance required by people should not be overstated.

Nonetheless, emergency planning around nuclear plants cannot assume people can evacuate without assistance. Therefore, all four functions identified above should be provided by someone. Currently, sirens are provided by the utilities. Educational material is usually delivered to the public by the utility. Utilities could make arrangements with local radio stations or in the extreme provide their own transmitters. Similarly, utilities can provide personnel for traffic control and/or provide drivers and buses to assist evacuations. All of these actions provide information or assistance to those who need or want it. Utilities or government can provide these resources. The usual distinction between these two organizations is the ability of government to adopt laws or rules. However, this capability is not necessary and is not used by government in responding to an accident. Emergency response requires manpower and equipment which either organization can provide.

Resources discussed above could be provided by the utility or local, state, or federal government. Further effort is needed to define what assistance could be provided by the federal government.

Oregon believes that utilities alone could perform the functions necessary to protect the public's health. However, Oregon is not willing to leave all decision making during planning or response to the utility and prefers to use its resources to implement protective actions. States and localities should be free to defer to the utility, but should not be precluded from taking an active role if desired.

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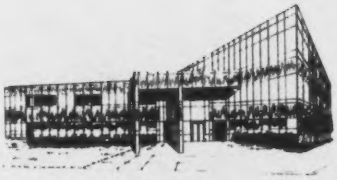


Kenosha County Emergency Government
Doran Hughes, Director

April 15, 1983

Subcommittee Hearing on Nuclear Regulation for Emergency Planning and Preparedness at Commercial Nuclear Power Plants

RE: NUCLEAR ACCIDENT RESPONSE PLAN - ZION, ILLINOIS NUCLEAR POWER STATION

Question 1.	Has the joint NRC-FEMA process for review and approval of emergency response plans for (i) operating reactors, and (ii) reactors under construction, functioned effectively? What changes, if any would you recommend in the extisting administrative or legislative framework to improve the process?
Answer:	The process for review and approval of plans for an operating reactor is by holding exercises and this seems to function effectively. The Kenosha County (Wisconsin) Radiological Emergency Response Plan for an accident at the Zion, Illinois Nuclear Power Generating Station has been tested on three (3) occasions. The last test of the plan was January 18th, 1983, of a full scale accident involving partial evacuation. We have made revisions to our plan after each exercise with the cooperation of the Wisconsin Division of Emergency Government and power plant officials. I believe we have a good written plan that is understood by all concerned, and feel the plan will work if it is ever needed. However, I believe that the personnel reviewing the actual exercise in progress should be more knowledgeable as to their observations. The FEMA observers are in reality persons contracted from outside agencies. These persons seem unsure of what they are looking for in many instances. After the exercise they give their report to FEMA showing deficiencies that do not actually exist.

1000 - 55th Street • Kenosha, Wis. 53140 • Phone 414 - 656-6595

Question 2. Are you satisfied that existing arrangements for the funding of emergency planning and preparedness provide an equitable means of financing State and local costs reasonably related to the preparation and implementation of emergency preparedness plans? What changes, if any, would you recommend in the current approach?

Answer: I am definitely not satisfied. Kenosha County and the State did not receive any funding for the preparation of this plan. We do, however, receive reimbursement direct from the utility (Commonwealth Edison) for costs incurred during an actual exercise.

It seems, however, that PSC set-aside funds are quite beneficial for necessary State equipment, manpower and expenses for emergency response, but very little of this funding is made available to local government where the immediate response would be needed.

Question 3. Are you satisfied that the existing approach by FEMA for identifying and correcting deficiencies in emergency preparedness plans is adequate and provides a reasonable degree of assurance that any deficiencies can and will be identified and corrected?

Answer: No. It seems that FEMA is rather quick to outline our deficiencies regarding additional communications equipment they feel we should have in our Emergency Operating Center. They do not, however, propose how we are to obtain the funding for such equipment. As stated previously, the persons identifying the deficiencies seem unsure of what they are looking for.

Question 4. What steps have been taken by NRC and FEMA to ensure, and what degree of confidence do you currently have, that State, local, and utility emergency preparedness plans will, in fact, be carried out in the event of an emergency?

Answer: Have no idea what steps NRC and FEMA would take except probably to cut off our federal reimbursement for regular program.

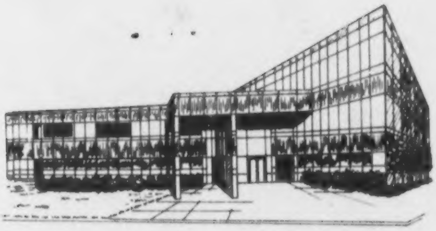
I have every confidence that the state, local and utility emergency preparedness plans will be carried out in the event of an emergency.

Question 5. Can a utility emergency response plan fully compensate for the failure, inability, or refusal of a State or locality to develop or implement an adequate emergency response plan? Please explain.

Answer: No. I believe any emergency preparedness plan written without the full cooperation of local and state guidance and support simply will not work when needed. A good workable plan must have the input of all parties who will be required to carry it out when and if needed.

Doran Hughes

DORAN HUGHES, Director
Kenosha County Emergency Government



Kenosha County Emergency Government
Doran Hughes, Director

May 3, 1983

Honorable Alan K. Simpson, Chairman
Subcommittee on Nuclear Regulation
United States Senate
Dirksen Building
Washington, D. C. 20510

Dear Senator Simpson:

Thank you for your letter of appreciation on my appearance before the Subcommittee on Nuclear Regulation. I felt honored to be asked to take part in the hearing and it was very gratifying to be able to express my opinions on the FEMA process of identifying and correcting deficiencies in emergency response plans.

In response to the questions you asked in your letter, as I stated at the hearing, I believe that FEMA is trying to do their job in assuring that written response plans to a nuclear power plant accident will work, if an accident should occur. The number of nuclear power plants now in operation, however, and the annual requirement for testing the response for an accident have probably stretched FEMA manpower to the limit. I feel that hiring outside agencies with very little knowledge of what they are observing, in order to supplement FEMA manpower, does not justify the final conclusions of deficiencies by FEMA. Their conclusions do not result in an improved emergency response plan, but rather adds to the frustrations of the ones who write the plans.

I believe after two annual response tests have been completed, future testing should be on a bi-ennial basis. This would be less costly to everyone involved -- the municipalities, the utilities and FEMA. I would like to be able to sit down face to face with the FEMA officials at the conclusion of each test and be able to respond to alleged deficiencies. If we were found to have deficiencies, we would agree to correct them. If the deficiencies do not exist, however, we would be able to show them before FEMA makes written conclusions.

Sincerely,

Doran Hughes

DORAN HUGHES, Director

Racine County
OFFICE of EMERGENCY GOVERNMENT
Safety Building **730 Center Street** **Racine, Wisconsin 53403**
Telephone 414 - 634 - 5331

APRIL 14, 1983

TO: UNITED STATES SENATE COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS
(ROBERT T. STAFFORD, CHAIRMAN)

SENATORS:

TESTIMONY OF PETER R. JENSEN TO THE UNITED STATES SENATE COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS REGARDING THE ZION NUCLEAR GENERATING STATION AND PLANS FOR DEALING WITH A REACTOR ACCIDENT.

QUESTION:
WOULD YOU PLEASE STATE YOUR NAME AND ADDRESS FOR THE RECORD.

MR. JENSEN:
MY NAME IS PETER R. JENSEN, AND I RESIDE AT 804 WEST LAWN AVENUE IN THE CITY OF RACINE, STATE OF WISCONSIN 53405.

QUESTION:
WHAT IS YOUR OCCUPATION?

MR. JENSEN:
I AM THE EMERGENCY GOVERNMENT COORDINATOR FOR THE COUNTY OF RACINE, AND I DIRECT THE EFFORTS OF THE RACINE COUNTY OFFICE OF EMERGENCY GOVERNMENT LOCATED AT 730 CENTER STREET, RACINE, WISCONSIN 53403.

QUESTION:
HOW LONG HAVE YOU BEEN IN THIS POSITION?

MR. JENSEN:
I HAVE BEEN EMPLOYED BY RACINE COUNTY FOR TWO (2) YEARS. PRIOR TO THIS, I WAS ACTIVE IN THE RACINE COUNTY EMERGENCY GOVERNMENT PROGRAM FOR APPROXIMATELY SIX (6) YEARS SERVING AS THE COUNTY SHELTER OFFICER.

QUESTION:
DO YOU HAVE ANY PREVIOUS EMERGENCY PLANNING EXPERIENCE IN ADDITION TO SERVING IN THE EMERGENCY GOVERNMENT OFFICE?

MR. JENSEN:
YES. I SERVED AS BOTH VICE-PRESIDENT AND PRESIDENT OF THE NATIONAL ASSOCIATION FOR SEARCH AND RESCUE, AND WAS EMPLOYED BY THE AMERICAN RED CROSS LAKESHORE COUNTIES AS THE SAFETY PROGRAMS DIRECTOR. IN ADDITION, I HAVE DONE WORK AS A SAFETY CONSULTANT TO BUSINESS AND INDUSTRY ON MATTERS RELATING TO THE OSHA ACT.

QUESTION:
ARE YOU FAMILIAR WITH THE ZION NUCLEAR POWER PLANT AND WHAT EFFECT DOES IT HAVE ON RACINE COUNTY EMERGENCY PLANNING?

MR. JENSEN:
YES. SINCE I HAVE BEEN EMPLOYED BY THE RACINE COUNTY OFFICE OF EMERGENCY GOVERNMENT, I HAVE BECOME VERY FAMILIAR WITH THE ZION NUCLEAR POWER PLANT AND IN PARTICULAR THE RESPONSE PLANS DEVELOPED BY RACINE COUNTY TO DEAL WITH AN ACCIDENT AT THAT FACILITY. RACINE AND ITS CITIZENS ARE NOT WITHIN THE TEN (10) MILE EMERGENCY PLANNING ZONE FOR THIS FACILITY. THE ROLE OF RACINE COUNTY IS THAT OF A HOST COUNTY FOR THE EVACUEES FROM KENOSHA COUNTY AND TO SERVE AS A CONDUIT FOR THOSE EVACUEES HEADING FURTHER WEST INTO WALWORTH COUNTY.

QUESTION:
HOW MANY PEOPLE CAN RACINE COUNTY ACCOMMODATE IN THE EVENT OF AN EMERGENCY AT THE ZION NUCLEAR POWER PLANT?

MR. JENSEN:
IN OUR PLANS WHICH WERE DEVELOPED IN 1980 AND EXERCISED ON JULY 29, 1981, RACINE COUNTY WAS SCHEDULED TO RECEIVE APPROXIMATELY 50,377 KENOSHA COUNTY CITIZENS. HOWEVER, IN OUR PLANNING PROCESS UNDER WHICH WE ARE NOW UPDATING OUR ZION NUCLEAR RESPONSE MANUAL, THE STATE OF WISCONSIN HAS INSTRUCTED US TO PREPARE TO RECEIVE ONLY 33,000 EVACUEES.

QUESTION:
WHAT ACCOUNTS FOR THE 20,000 DECREASE IN-BETWEEN THESE TWO PLANNING EFFORTS?

MR. JENSEN:
IN 1980 AND 1981, WHILE WE WERE PREPARING FOR A FULL SCALE EXERCISE OF OUR ZION RESPONSE PLAN, WE WERE ADVISED BY WALWORTH COUNTY THAT OFFICIALS AT THE UNIVERSITY OF WISCONSIN-WHITEWATER, WHICH IS A MAJOR SHELTER IN WALWORTH COUNTY, DID NOT BELIEVE THAT THEY COULD EFFICIENTLY ACCOMMODATE THE PLANNED ALLOTMENT OF 40,000 RESIDENTS TO THAT FACILITY. IN THEIR OPINION, THEY FELT COMFORTABLE IN DEALING WITH 20,000 EVACUEES FROM KENOSHA COUNTY. AS A RESULT, RACINE COUNTY WAS ASKED TO INCREASE ITS SHELTER CAPACITY BY 20,000 TO MAKE UP FOR THIS WALWORTH COUNTY DEFICIT.

QUESTION:
WHY IS RACINE COUNTY NOW DECREASING ITS SHELTER CAPACITY 20,000? HAS WALWORTH COUNTY FOUND ROOM FOR THESE PEOPLE?

MR. JENSEN:
IN MY LAST DISCUSSIONS WITH THE STATE OF WISCONSIN, I WAS INFORMED THAT THE UNIVERSITY OF WISCONSIN-WHITEWATER WOULD BE EXPECTED TO HOUSE 40,000 RESIDENTS. I AM NOT SURE IF THE UNIVERSITY HAS RE-EVALUATED ITS POSITION OR IF THE STATE HAS DECIDED THAT THEIR ESTIMATES OF THEIR CAPACITY WERE UNREALISTIC.

QUESTION:
DO YOU FEEL THAT THE ESTIMATES OF RACINE COUNTY'S SHELTER CAPACITY ARE ACCURATE, AND ARE THERE ANY PROBLEMS THAT YOU CAN ENVISION IN HOUSING 33,000 PEOPLE ALLOTTED FOR RACINE COUNTY?

MR. JENSEN:
I FEEL THAT THE 33,000 PEOPLE ALLOTTED TO RACINE COUNTY CAN EASILY BE ACCOMMODATED WITH OUR PRESENT FACILITIES. IN ADDITION, IF WE WERE PROVIDED WITH A REALISTIC SURVEY OF OTHER FACILITIES LOCATED WITHIN THE COUNTY, I AM SURE RACINE COUNTY'S CAPACITY COULD BE SUBSTANTIALLY INCREASED. HOWEVER, I FEEL IT IS IMPORTANT THAT THE SHELTER CAPABILITIES BE ESTABLISHED WITH SOME CONSIDERATION FOR THE REAL WORLD SITUATION RATHER THAN STRICTLY ON A THEORETICAL BASE. AS A HOST COUNTY, WE HAVE A NUMBER OF CONCERNS IN REGARDS TO THE ABILITY OF CERTAIN FACILITIES TO HOUSE THE NUMBER OF PEOPLE THEY WERE ORIGINALLY SCHEDULED TO RECEIVE.

QUESTION:
WOULD YOU EXPLAIN THESE CONCERNS FURTHER.

MR. JENSEN:
YES. WHEN THE RACINE COUNTY FACILITIES WERE ORIGINALLY SURVEYED AS POSSIBLE SHELTER SITES, THEIR CAPABILITY WAS ESTIMATED BASED STRICTLY ON ALLOWING 40 SQUARE FEET PER PERSON WITHIN THAT FACILITY. WHILE THIS MAY BE A GOOD RULE OF THUMB TO FOLLOW, IT CAN PRESENT SERIOUS PROBLEMS WHEN ONE IS FORCED TO CONSIDER THE OTHER CRITERIA THAT MAKE A SHELTER HABITABLE. FOR EXAMPLE, FEEDING AT THE SHELTER SITES IS, OF COURSE, A MAJOR CONCERN AND OUR EARLIER PLANS DID NOT FULLY RECOGNIZE THE PROBLEMS THAT FEEDING WOULD CREATE. FOR EXAMPLE, THE SHELTER LOCATED AT WASHINGTON PARK HIGH SCHOOL IN THE CITY OF RACINE WAS ORIGINALLY SCHEDULED TO RECEIVE 7,575 EVACUEES. HOWEVER, THE FEEDING CAPACITY OF THE BUILDING IN THE CAFETERIA AND KITCHEN FACILITIES IS APPROXIMATELY 500. THIS WOULD MEAN THAT IT WOULD TAKE 15 FEEDING SHIFTS TO PROVIDE EVERY OCCUPANT WITH ONE MEAL. IF YOU ALLOWED 30 MINUTES PER FEEDING SHIFT, THIS WOULD MEAN THAT THE SHELTER OCCUPANTS WOULD RECEIVE ONE MEAL EVERY EIGHT HOURS. THIS IS UNREALISTIC TO ACCEPT. WHEN OUR SHELTER STAFF INVESTIGATED THE PROBLEMS ASSOCIATED WITH TRUCKING FOOD INTO A FACILITY TO SUPPLEMENT THE FEEDING CAPACITY NORMALLY IN EXISTENCE, THEY DETERMINED FOR THE MOST PART THAT THIS WAS NOT PRACTICAL IN DEALING WITH THE MANY SHELTER SITES THAT EXIST WITHIN THE COUNTY OF RACINE. IT WAS THE OPINION OF THE STAFF THAT WE WOULD BE BETTER TO OPEN MORE SHELTER FACILITIES AND REDUCE THE BURDENS PLACED ON INDIVIDUAL SITES BY SPREADING THE POPULATION MORE EVENLY THROUGH THE COUNTY. UNDER THE PRESENT PLANNING PROCESSES, WE ARE NOW ALLOWING 2,300 PEOPLE FOR THE WASHINGTON PARK HIGH SCHOOL SHELTER SITE. THIS ALLOWS US TO FEED THE POPULATION IN APPROXIMATELY FOUR SHIFTS AND TO PROVIDE THE PEOPLE WITH A REGULAR MEAL SERVICE.

QUESTION:
IS FOOD SERVICE THE ONLY PROBLEM YOU EXPECT IN DEALING WITH THE MASS CARE SITES?

MR. JENSEN:
NO. THERE ARE SEVERAL OTHER CONCERNS WHICH WE ARE JUST NOW BEGINNING TO ADDRESS. PARKING IS, OF COURSE, A MAJOR CONCERN FOR US. FOR OUR PLANNING PURPOSES, WE ARE ASSUMING THAT WE WILL HAVE APPROXIMATELY THREE OCCUPANTS PER VEHICLE ARRIVING AT THE SHELTER SITES. OF COURSE, THIS FIGURE IS ONLY

AN AVERAGE AND IN REAL LIFE WE WOULD ASSUME THAT SOME VEHICLES WOULD HAVE MORE OCCUPANTS AND OTHERS LESS. SINCE MANY OF OUR SHELTER SITES ARE LOCATED IN URBAN AREAS, PARKING BECOMES A MAJOR CONCERN. THE PROBLEM OF VEHICLE PARKING WAS NOT ADDRESSED IN ANY OF OUR PREVIOUS PLANS. IN DEALING WITH THE PARKING SITUATION, IN MANY INSTANCES WE ARE ESTABLISHING REMOTE PARKING SITES FROM WHERE WE WILL BUS THE EVACUEES TO THE SCHOOL OR FACILITY SERVING AS THE SHELTER. RACINE COUNTY, BECAUSE OF ITS MANY SHELTER SITES SPREAD THROUGHOUT THE COUNTY IS BETTER EQUIPPED TO DEAL WITH THE PARKING SITUATION THAN OTHER COMMUNITIES. FOR EXAMPLE, GOING BACK TO THE UNIVERSITY OF WISCONSIN WHITEWATER; IF THEY ARE SCHEDULED TO RECEIVE 40,000 SHELTER OCCUPANTS, PLANS WOULD HAVE TO BE MADE TO DEAL WITH 13,333 VEHICLES. THE MAGNITUDE OF THIS PROBLEM IS COMPOUNDED WHEN ONE MUST REALIZE THAT THE PARKING SPACES MUST BE AVAILABLE ON A 24-HOUR A DAY YEAR ROUND BASIS. THIS ELIMINATES THE USE OF FARM FIELDS AND OTHER AREAS AS EMERGENCY PARKING SITES.

QUESTION:
DO YOU HAVE ANY ADDITIONAL CONCERNS WITH SOME OF THE SHELTER SITES THAT HAVE BEEN PROGRAMMED FOR USE?

MR. JENSEN:
UNDER THE REVISED PLANS WHICH ARE NOW BEING CREATED, I FEEL MORE CONFIDENT THAT THE SHELTER SITES WE HAVE SELECTED ACTUALLY HAVE THE CAPABILITY OF HANDLING THE NUMBER OF EVACUEES WHICH THEY ARE SCHEDULED TO RECEIVE. TO A GREAT EXTENT, WE HAVE ELIMINATED FACILITIES WHICH, IN MY OPINION, WERE SIMPLY NOT CAPABLE OF HANDLING THE SHELTER POPULATIONS WHICH THEY WERE ORIGINALLY ESTIMATED TO HOUSE. SOME FACILITIES WHICH WERE UTILIZED IN EARLIER PLANNING PROCESSES, ALTHOUGH THEY HAD THE SQUARE FOOTAGE TO HOUSE LARGE NUMBERS OF PEOPLE, DID NOT HAVE THE SUPPORT SERVICES NECESSARY FOR SUCH A LARGE POPULATION. A NUMBER OF THE RURAL SCHOOLS WHICH WERE TARGETED FOR SHELTER SITES UTILIZE WELLS FOR WATER SUPPLY AND RELY ON EXPANDED SEPTIC TANKS FOR SEWAGE DISPOSAL. ACCORDING TO EPA IN THEIR MANUAL OF INDIVIDUAL SUPPLY SYSTEMS, A SCHOOL WITH A CAFETERIA, GYM AND SHOWER SHOULD ALLOW APPROXIMATELY 25 GALLONS OF WATER USAGE PER DAY PER STUDENT. IT WOULD APPEAR THESE FACILITIES HAVE ADHERED TO THESE GUIDELINES. HOWEVER, WHEN ONE CONSIDERS THAT UNDER AN EMERGENCY SHELTER OPERATION WATER USAGE WILL GREATLY INCREASE, IT MAY VERY LIKELY BE THAT THE WELL SYSTEM IS UNABLE TO SUPPORT THIS INCREASED LOAD. FOR EXAMPLE, A BOARDING SCHOOL ACCORDING TO EPA WOULD REQUIRE 75-100 GALLONS OF WATER PER PERSON PER DAY TO ADEQUATELY MEET THE NEEDS. THIS THREE OR FOUR-FOLD INCREASE IN WATER USAGE DOES NOT APPEAR TO HAVE BEEN TAKEN INTO CONSIDERATION IN DETERMINING WHETHER A SHELTER COULD HOUSE ITS ALLOTMENT. OF GREATER CONCERN TO ME IS THE SEWAGE DISPOSAL SYSTEM AT SOME SITES. IF THE SEPTIC SYSTEM IS OVERBURDENED, A SERIOUS HEALTH PROBLEM COULD BE CREATED WHICH WOULD BE FAR MORE DANGEROUS THAN SIMPLY DEALING WITH A FACILITY OUT OF WATER.

QUESTION:
ARE SUCH CONSIDERATIONS ADDRESSED IN OTHER COUNTIES IN DEALING WITH SHELTER SITE SELECTION?

MR. JENSEN:
TO THE BEST OF MY KNOWLEDGE, THESE CONCERNS WERE NOT ADDRESSED IN OTHER COUNTY'S PLANS. THEY REPRESENT A NEW PLANNING AREA WHICH RACINE COUNTY IS JUST BEGINNING TO ADDRESS.

QUESTION:
WHEN KENOSHA COUNTY RESIDENTS ARRIVE AT RACINE COUNTY SHELTERS, ARE THEY CHECKED FOR ANY POSSIBLE CONTAMINATION AS A RESULT OF COMING IN CONTACT WITH A RADIOACTIVE RELEASE FROM THE ZION NUCLEAR POWER PLANT?

MR. JENSEN:
THIS PROBLEM IS NOT FULLY ADDRESSED IN THE RACINE COUNTY PORTION OF OUR RESPONSE PLAN. THE STATE OF WISCONSIN HAS STATED THAT THEY WOULD SUPPLY MONITORS AND INSTRUMENTS AT THE SHELTER SITES TO DETECT ANY RADIOLOGICAL CONTAMINATION OF KENOSHA COUNTY RESIDENTS OR OF THEIR VEHICLES WHICH MAY ALSO HAVE BEEN EXPOSED TO RADIOLOGICAL MATERIALS. HOWEVER, IN DISCUSSING THIS SITUATION WITH THE WORKING STAFF OF THE WISCONSIN STATE DEPARTMENT OF HEALTH AND OTHER AGENCIES INVOLVED IN THIS EFFORT, THEY READILY ADMIT THAT THEY DO NOT HAVE THE CAPABILITY FOR DEALING WITH 34 SHELTER SITES IN THE COUNTY OF RACINE FOR SUCH A LARGE SCALE MONITORING OPERATION. THEY LACK BOTH INSTRUMENTS NECESSARY TO DETECT THE RADIOLOGICAL CONTAMINATION WHICH MAY BE PRESENT; AND THE STAFF, PRIMARILY HEALTH PHYSICISTS, REQUIRED TO INTERPRET THE RESULTS. AS A RESULT, I AM AFRAID MANY KENOSHA COUNTY RESIDENTS WOULD NOT BE MONITORED OR RECEIVE DECONTAMINATION ASSISTANCE PRIOR TO ENTERING A SHELTER SITE IN RACINE COUNTY.

QUESTION:
YOU HAVE ADDRESSED THE PROBLEM WITH FEEDING PEOPLE IN THE SHELTER SITES. DO YOU SEE ANY ADDITIONAL SUPPLY PROBLEMS IN HANDLING A MASS EVACUATION FROM KENOSHA?

MR. JENSEN:
OF COURSE, THERE WILL BE MANY MORE PROBLEMS WHICH THE HOST COUNTY MUST DEAL WITH. WHILE NUREG-0654 IS THE BASIS DOCUMENT FOR PLANNING AN EMERGENCY RESPONSE TO A POWER PLANT ACCIDENT, IT DOES NOT ADDRESS THE SUPPLY PROBLEM. OUR PLANNERS AND DEPARTMENT HEADS HAVE ON THEIR OWN DEVELOPED A NUMBER OF SUPPLY PLANS FOR MEETING THE NEEDS OF THE SHELTER SITES. WE STILL HAVE NUMEROUS CONCERNS IN DEALING WITH SOME SUPPLY ITEMS, BUT WE FEEL THAT ANY INVENTORY SHORTAGES WHICH WOULD OCCUR IN LOCAL FOOD MARKETS WOULD BE TEMPORARY AND WOULD CORRECT THEMSELVES IN SEVERAL DAYS. RACINE COUNTY IS IN THE PROCESS OF ADVANCING THESE PLANS, ALTHOUGH THEY ARE NOT INCORPORATED IN THE NUREG-0654 PLANNING DOCUMENT CREATED BY RACINE COUNTY.

QUESTION:
DO YOU HAVE ANY OTHER CONCERNS?

MR. JENSEN:
COMMUNICATIONS, WITHOUT A DOUBT, TO THE SHELTER SITES IS ONE OF OUR NAGGING PROBLEMS. FEW OF THE SHELTER LOCATIONS HAVE MORE THAN ONE TELEPHONE LINE ENTERING THE FACILITY. AND, IN FACT, WE EXPECT THAT TELEPHONE LINE TO BECOME INOPERATIVE DURING A POWER PLANT EMERGENCY AS A RESULT OF SUBSCRIBER OVERLOADING WHICH MAY VERY WELL, IN EFFECT, BRING DOWN THE TELEPHONE SYSTEM. IN ANY EVENT, ONE TELEPHONE LINE IS INSUFFICIENT TO DEAL WITH A SHELTER SITE WHICH IS HOUSING SEVERAL THOUSAND PEOPLE. AS A BACK-UP SYSTEM ON A TEMPORARY BASIS, OUR PLANS CALL FOR THE UTILIZATION OF AMATEUR RADIO OPERATORS. THESE VOLUNTEERS WOULD BE REQUIRED TO TAKE PERSONAL EQUIPMENT TO A SHELTER SITE AND RIG A TEMPORARY COMMUNICATIONS SET UP TO PROVIDE US WITH ESSENTIAL COMMUNICATIONS.

HOWEVER, THESE AMATEUR RADIO OPERATORS UTILIZE A REPEATER TO EXPAND THEIR COMMUNICATIONS RANGE. THIS REPEATER SERVES BOTH THE RACINE AND KENOSHA COUNTY AREAS. DURING OUR TEST IN 1981, WE FOUND THAT THE AMATEUR RADIO SYSTEM QUICKLY BECAME OVERBURDENED WITH THE COMMUNICATIONS THAT WE WERE PLACING UPON THE SYSTEM. HAD THIS BEEN AN ACTUAL EMERGENCY, WITHOUT A DOUBT, THIS COMMUNICATIONS SYSTEM WOULD HAVE BEEN TOTALLY INADEQUATE TO MEET THE NEEDS THAT WE FACED. WHILE WE HAVE LOOKED AT PROVIDING A SEPARATE RADIO SYSTEM TO PROVIDE A RADIO LINK TO OUR SHELTER SITES, THE COST OF INSTALLING SUCH A SYSTEM IS PROHIBITIVE AT THE PRESENT TIME. IN ADDITION, THE QUESTION HAS OFTEN BEEN RAISED AS TO WHO WOULD PAY FOR SUCH A SYSTEM. LOCAL OFFICIALS FEEL IT IS UNWARRANTED FOR RACINE COUNTY PROPERTY TAX DOLLARS TO BE SPENT TO HOUSE THE RESIDENTS FROM AN ADJOINING COUNTY.

QUESTION:
HAS THE ZION NUCLEAR POWER PLANT ASSISTED RACINE COUNTY IN PURCHASING THIS EQUIPMENT OR COMPENSATING THE COUNTY FOR ITS EFFORTS?

MR. JENSEN:
THE ZION NUCLEAR POWER PLANT HAS REIMBURSED RACINE COUNTY FOR EXERCISE COSTS RELATED TO THE 1981 TEST. IN ADDITION, ZION HAS PROVIDED 50% FUNDING ON AN EMERGENCY MEDICAL SERVICES (EMS) RADIO SYSTEM WHICH WILL ALLOW US TO COMMUNICATE WITH INCOMING AMBULANCES FROM KENOSHA COUNTY WHO WOULD BE EVACUATING PATIENTS FROM NURSING HOMES, HOSPITALS, AND THE LIKE. THE ZION FACILITY HAS ALSO PROVIDED US WITH SOME FUNDING FOR THE MAINTENANCE OF OUR EMERGENCY TELEPHONE SYSTEM WHICH WOULD BE UTILIZED IF THE TELEPHONE SYSTEM REMAINED IN EFFECT AT THE FACILITY. WE HAVE NOT RECEIVED ANY FUNDING FOR OUR PLANNING EFFORTS OR OTHER ACTIVITIES AT THIS TIME. ONE OF THE PROBLEMS RACINE COUNTY HAS IN DEALING WITH THE ZION FACILITY IS THAT THEY ARE NOT UNDER ANY CONSTRAINT SUCH AS THAT IMPOSED ON WISCONSIN UTILITIES TO PROVIDE FUNDING TO LOCAL GOVERNMENTS IN PREPARATION OF PLANS AND EQUIPMENT NEEDS AT THEIR FACILITY. THE ZION NUCLEAR POWER PLANT IS IN THE STATE OF ILLINOIS AND IS, THEREFORE, EXEMPT FROM WISCONSIN P.S.C. CONTROLS. THEIR PARTICIPATION AND LOCAL FUNDING IS STRICTLY VOLUNTARY AND SHOULD A DISPUTE ARISE BETWEEN THE POWER PLANT AND THE COUNTIES, THERE IS NO ARBITRATING BODY WHICH COULD EASILY SOLVE THE PROBLEM OR RULE IN FAVOR OF ONE PARTY OR THE OTHER. IN MY OPINION, WHAT IS NEEDED IS SOME SORT OF NATIONAL MANDATE FOR SUCH FACILITIES TO PROVIDE FUNDING TO LOCAL GOVERNMENTS ACROSS STATE BOUNDARIES OR WHEREVER THEY IMPACT TO ASSIST LOCAL COMMUNITIES IN DEALING WITH SUCH A DEMANDING PLANNING PROJECT.

QUESTION:
DO YOU HAVE ANY OTHER PROBLEMS IN THE COMMUNICATIONS AREA?

MR. JENSEN:
IN MY OPINION, THE COMMUNICATIONS IS THE MOST CRITICAL PLANNING PROBLEM WE HAVE IN DEALING WITH AN INCIDENT AT THE ZION NUCLEAR FACILITY. THE RACINE COUNTY OFFICE OF EMERGENCY GOVERNMENT HAS AN EXTENSIVE COMMUNICATIONS SYSTEM TO DEAL INTRA-COUNTY. HOWEVER, OUR COMMUNICATIONS SYSTEMS TO BOTH KENOSHA COUNTY AS THE RISK AREA AND WALWORTH COUNTY AS ANOTHER HOST SITE ARE SEVERELY LACKING. AT THE PRESENT TIME, PLANS CALL FOR THE UTILIZATION OF ONLY TWO RADIO LINKS; THESE BEING THE SOUTHEAST AREA CIVIL DEFENSE NETWORK AND LAW ENFORCEMENT POINT-TO-POINT SYSTEM. HOWEVER, WE WOULD EXPECT THE LAW ENFORCEMENT POINT-TO-POINT SYSTEM TO BECOME OVERBURDENED WITH COMMUNICATIONS FROM LAW ENFORCEMENT AGENCIES ALL AROUND THE ZION PLANT, BOTH IN WISCONSIN AND ILLINOIS, MAKING IT RAPIDLY USELESS.

IN ADDITION, IN MY OPINION, WE CANNOT HEAVILY RELY UPON THE TELEPHONE SYSTEM. IN DEALING IN SUCH A POPULATED AREA, I WOULD EXPECT THE DEMAND PLACED UPON THE TELEPHONE SYSTEM BY RESIDENTS, EVACUEES AND COUNTLESS OTHERS TO EXCEED THE TELEPHONE SYSTEM'S CAPACITY WHICH WOULD RESULT IN THE TEMPORARY FAILURE OF THE SYSTEM. I WOULD EXPECT THIS FAILURE TO TAKE PLACE AT TIMES WHEN GOVERNMENT REQUIRES AN EXTENSIVE COMMUNICATIONS SYSTEM TO DEAL WITH THE EMERGENCY AT HAND. TO DATE, MANY OF OUR PLANNING PROGRAMS HAVE LEANED HEAVILY ON THE TELEPHONE SYSTEM WHICH I FEEL MAY BECOME A LIABILITY TO US IN A NATIONAL NUCLEAR EMERGENCY. ONCE AGAIN, WHILE THE TECHNOLOGICAL SYSTEM IS AVAILABLE TO UPGRADE OUR RADIO COMMUNICATIONS, THE FUNDING IS NOT. LOCAL OFFICIALS DO NOT SEE AN EXTENSIVE NEED TO FUND SUCH A MASSIVE COMMUNICATIONS SYSTEM WITH LOCAL TAX DOLLARS FOR A SYSTEM WHICH PRIMARILY SERVES A PLAN DESIGNED TO DEAL WITH A NUCLEAR POWER FACILITY IN AN ADJOINING STATE. IN ADDITION, QUESTIONS ARE ALWAYS RAISED IF IT IS REALLY THE RESPONSIBILITY OF THE COUNTY OF RACINE TO EXPEND SUCH LARGE AMOUNTS OF MONEY ON A SYSTEM WHICH WILL PRIMARILY BENEFIT THE RESIDENTS OF KENOSHA COUNTY. THIS IS A POLITICAL QUESTION, AND ONE WHICH I AM SURE HAS NO EASY ANSWER.

QUESTION:
WHAT ARE YOUR FEELINGS ON THE TRAFFIC ROUTES USED BY KENOSHA COUNTY EVACUEES?

MR. JENSEN:
I FEEL KENOSHA COUNTY HAS A UNIQUE PROBLEM IN EVACUATING THEIR RESIDENTS IN THE EVENT THAT THE SITUATION DETERIORATES SO SEVERELY AT THE ZION FACILITY WHERE AN EVACUATION WOULD BE ORDERED BY THE GOVERNOR OF THE STATE OF WISCONSIN OR THE KENOSHA COUNTY SHERIFF DEPARTMENT. WE HAVE GREATLY REVISED THE TRAFFIC ROUTES THAT KENOSHA COUNTY RESIDENTS WILL USE TO LEAVE THEIR COUNTY, ENTER RACINE COUNTY AND TRAVEL ENROUTE TO WALWORTH COUNTY. OUR PRIMARY TRAFFIC ROUTES ARE NOW HY. 31 OUT OF KENOSHA COUNTY AND INTO RACINE COUNTY, HY. 20 WEST THROUGH RACINE COUNTY TO WALWORTH COUNTY, AND HY. 142 OUT OF KENOSHA COUNTY INTO THE CITY OF BURLINGTON WHERE IT WILL CONNECT WITH HY. 11, TRAVELING WEST INTO WALWORTH COUNTY. WE HAVE ELIMINATED THE USE OF HY. 83 FROM KENOSHA COUNTY INTO THE CITY OF BURLINGTON, AND HY. 11 WEST FROM HY. 31 TO THE CITY OF BURLINGTON. THE REASONS FOR THIS ARE OBVIOUS WHEN ONE LOOKS AT A MAP. THE CITY OF BURLINGTON HAS A POOR TRAFFIC PATTERN EVEN DURING NORMAL SITUATIONS. THE STRESS THAT WOULD BE PLACED IN BURLINGTON'S TRAFFIC PATTERN SHOULD THREE MAJOR HIGHWAYS CONVERGE ON THE CITY AND EXIT ON ONE SINGLE ROUTE WOULD BE DISASTROUS. ALTHOUGH WE HAVE REDUCED THE TOTAL NUMBER OF OUTGOING ROADS FROM KENOSHA COUNTY, WE FEEL THAT THIS IS ADVISABLE TO PREVENT TRAFFIC JAMS WHICH WOULD DETAIN EVACUEES FOR AN UNTOLD LENGTH OF TIME. IN ADDITION, WE HAVE IDENTIFIED SEVERAL ALTERNATE ROUTES WHICH COULD BE USED FOR KENOSHA COUNTY EVACUEES SHOULD ANY PRIMARY ROUTES BECOME OBSTRUCTED OR BE UNDER CONSTRUCTION WHEN THE EVACUATION TOOK PLACE. ON THE WHOLE, I FEEL THE TRAFFIC ROUTES NOW IN PLACE ARE ADEQUATE IN RACINE COUNTY TO MOVE THE RESIDENTS THAT KENOSHA WOULD SEND US.

QUESTION:
DO YOU HAVE ANY OTHER CONCERNS ON THE ROUTING OF TRAFFIC IN RACINE COUNTY?

MR. JENSEN:
ACTUALLY, ONE OF OUR BIGGEST PROBLEMS IN RACINE COUNTY IS NOT THE PASS-THRU OF TRAFFIC THROUGH THE COUNTY INTO WALWORTH COUNTY, BUT THE ROUTING OF EVACUEES TO SHELTER LOCATIONS WHERE WE WOULD HOUSE THEM. AGAIN, THIS IS A PROBLEM WHICH

WAS NEVER FULLY EXPLORED IN PREVIOUS PLANNING DOCUMENTS AND, TO THE BEST OF MY KNOWLEDGE, HAS NEVER BEEN FULLY EXPLORED IN THE OTHER PLANS WHICH I HAVE LOOKED AT. WE ARE PRESENTLY PLANNING TO FILL COMPLEXES OF SEVERAL SHELTERS WITH THE RESIDENTS FROM KENOSHA. TRAFFIC WOULD BE ROUTED OFF OF THE MAIN FLOW PATTERNS AND DIRECTED TO SHELTER COMPLEX PARKING AREAS WHERE THE PUBLIC WOULD BE INSTRUCTED TO EITHER BOARD BUSSES OR WALK TO A SHELTER LOCATION. ONCE THE PEOPLE WERE AT THE SHELTER LOCATION, THEY WOULD BE REGISTERED ACCORDINGLY. UNLIKE OTHER SMALL COUNTIES, RACINE HAS NOT PLANNED FOR ONE CENTRAL RECEPTION CENTER. THE PROCESSING, TRAFFIC FLOW, AND PARKING PROBLEMS PRECLUDE ITS USE WHEN DEALING WITH SUCH A LARGE NUMBER OF PEOPLE. THE ONLY INTERNAL TRAFFIC FLOW THAT WE EXPECT FROM SHELTER TO SHELTER WOULD BE TO THOSE LIMITED CASES WHICH REQUIRE SPECIAL DIETS OR SPECIAL CARE NEEDS. WE HAVE IDENTIFIED CERTAIN SHELTERS WHICH WOULD HOUSE THESE PEOPLE, AND WE ARE PREPARING MAPS TO DIRECT THEM FROM OTHER SHELTER SITES TO THEIR FINAL DESTINATION. ONE OF MY OTHER MAJOR CONCERNS WITH TRAFFIC FLOW REVOLVES AROUND THOSE PEOPLE ENTERING RACINE COUNTY WHO FOR ONE REASON OR ANOTHER MUST LEAVE THE MAIN EVACUATION ROUTE. SUCH PEOPLE MAY HAVE TO LEAVE TO REFUEL THEIR VEHICLES, FOR MECHANICAL PROBLEMS, OR ANY NUMBER OF OTHER REASONS. SINCE THE PRIMARY EVACUATION ROUTES HAVE NOT BEEN MARKED, THEIR IDENTIFICATION TO SOMEONE UNFAMILIAR TO THE COMMUNITY MAY PROVE TO BE DIFFICULT. ALTHOUGH WE HAVE EXPLORED THE POSSIBILITY OF MARKING THESE EVACUATION ROUTES WITH TRAFFIC SIGNS, ETC., OUR REQUESTS TO OFFICIALS OF THE ZION FACILITY AND THE STATE OF WISCONSIN FOR THE DEVELOPMENT OF UNIFORM MARKING SIGNS HAVE BEEN RECEIVED WITH DEAF EARS.

QUESTION:
WILL SUCH A LARGE TRAFFIC FLOW GIVE RACINE COUNTY ANY OTHER TRAFFIC PROBLEMS?

MR. JENSEN:
WITHOUT A DOUBT, DURING THE EVACUATION PERIOD, RACINE COUNTY RESIDENTS WILL BE INCONVENIENCED BY THE MASSIVE TRAFFIC FLOW. I SEE NO MAJOR PROBLEMS IN HANDLING THE NUMBER OF VEHICLES EXPECTED TO TRANSVERSE RACINE COUNTY WITH THE KNOWLEDGE, OF COURSE, THAT THE EVACUATION WOULD TAKE PLACE OVER SEVERAL HOURS PERIOD OF TIME. WE WOULD HOPE THAT THE COOPERATION OF RACINE COUNTY MOTORISTS TO AVOID MAJOR ROUTES WOULD EASE THIS SITUATION, MAKING IT MANAGEABLE BY OUR LAW ENFORCEMENT AND HIGHWAY PERSONNEL. FOLLOWING OUR LAST MAJOR EXERCISE IN JULY, 1981, SEVERAL CONCERNS WERE BROUGHT UP REGARDING FUEL STATIONS ALONG THE EVACUATION ROUTE. UNLESS WE EXPERIENCE PANIC BUYING WHERE LARGE NUMBERS OF MOTORISTS STOP TO TOP OFF THEIR FUEL TANKS, I DO NOT EXPECT MAJOR PROBLEMS IN SUPPLYING FUEL TO THEIR VEHICLES ALONG THE EVACUATION ROUTES. SOME LIMITATIONS ON SALES MAY HAVE TO BE MADE, LIMITING THE TOTAL PURCHASE TO $5 or $10. HOWEVER, THIS COULD EASILY BE DEALT WITH ON A LOCAL LEVEL. IT IS INTERESTING TO NOTE, HOWEVER, THAT SEVERAL FUEL STATIONS ALONG THE EVACUATION ROUTE FOLLOWING THE LAST TEST WERE GREATLY ENTHRALLED WITH SO MANY VEHICLES MAKING AN EMERGENCY DEGRESS BY THEIR STATIONS. AND, IN FACT, SOME STATION OPERATORS STATED THAT IF ANYTHING WERE TO HAPPEN AT THE ZION PLANT, THEIR RESPONSE WOULD BE TO RAISE GAS PRICES. SO, WE MAY HAVE A SITUATION WHERE COST ALONE WILL LIMIT THE PURCHASING THE PUBLIC DOES.

QUESTION:
HOW DO YOU INTEND TO IDENTIFY THE TRAFFIC EVACUATING FROM KENOSHA, AS COMPARED TO THE NORMAL DAY-TO-DAY TRAFFIC FLOW OF YOUR COUNTY?

MR. JENSEN:
THIS IS A QUESTION WHICH IS RAISED PERIODICALLY AND WHICH NO SIMPLE ANSWER WILL COMPLETELY PROVE SUITABLE. IN THE PAST, WE HAVE DISCUSSED SUCH OPTIONS WITH KENOSHA AS AFFIXING SPECIAL WINDSHIELD TAGS, STICKERS, OR OTHER MARKING IDENTIFIERS TO THE KENOSHA COUNTY TRAFFIC AS IT EXITS THEIR COUNTY. ONCE THIS TRAFFIC ENTERS RACINE COUNTY, IT COULD BE IDENTIFIED BY LAW ENFORCEMENT PERSONNEL AND DIRECTED ALONG THE PROPER ROUTES. HOWEVER, I THINK IT IS IMPORTANT TO REALIZE THAT A NUMBER OF EVACUEES FROM KENOSHA WILL NOT WANT TO BE HOUSED IN WALWORTH OR RACINE CONGREGATE CARE CENTERS. THEY MAY INSTEAD WISH TO DRIVE TO MILWAUKEE OR OTHER LOCATIONS FOR THE SHELTER PERIOD TO STAY WITH FRIENDS, RELATIVES, OR AT OTHER POINTS. WE HAVE NO EASY ANSWER FOR THIS SITUATION AND IT IS UNDER ADDITIONAL STUDY.

QUESTION:
WHAT IMPACT WILL THE ARRIVAL OF KENOSHA EVACUEES HAVE ON RACINE COUNTY?

MR. JENSEN:
THE INFLUX OF KENOSHA RESIDENTS ON RACINE COUNTY WILL SHOW ITS EFFECT IN MANY WAYS. OF COURSE, MUCH DEPENDS UPON THE SEVERITY OF THE SITUATION AT THE ZION FACILITY AND WHETHER OR NOT A COMPLETE OR PARTIAL EVACUATION IS ORDERED. FIRST, SINCE WE ARE ALMOST EXCLUSIVELY USING SCHOOLS AS SHELTER SITES, THIS WILL NECESSITATE THE DISMISSAL OF CLASSES FOR LARGE GROUPS OF RACINE COUNTY STUDENTS.
IN A POSSIBLE EVACUATION OF KENOSHA I FEEL IT WOULD BE NECESSARY, IN ORDER TO PREPARE THE SHELTER SITES FOR THE ARRIVAL OF SUCH LARGE QUANTITIES OF PEOPLE TO, IF AT ALL POSSIBLE, DISMISS SCHOOLS BEFORE AN EVACUATION IS ORDERED. THIS WILL ALLOW OUR HUMAN SERVICES AND SHELTER STAFF TIME TO PREPARE THE FACILITY FOR THE KENOSHA RESIDENTS. HOWEVER, THIS WILL MEAN THAT RACINE COUNTY PARENTS WHO HAVE THEIR CHILDREN IN THE FACILITIES WILL BE FORCED TO MAKE ALTERNATE PLANS FOR THE CARE OF THIS STUDENT POPULATION. SINCE WE HAVE A RELATIVELY LARGE PORTION OF OUR POPULATION WHICH HAVE BOTH PARENTS WORKING OUTSIDE OF THE HOME, THIS COULD FORCE A HARDSHIP ON THE FAMILY IN ARRANGING FOR BABYSITTING, DAY CARE, OR OTHER TYPES OF CARE REQUIRED BY THESE DISPLACED STUDENTS. IN RECOGNIZING THE IMPACT OF THIS SITUATION, SOME GROUPS HAVE OFFERED THE POSSIBILITY OF OPENING TEMPORARY DAY CARE CENTERS TO HOUSE THE YOUNGER CHILDREN EFFECTED BY THE EVACUATION.
THIS IS PRIMARILY BEING HANDLED BY THE PRIVATE SECTOR AND I HAVE NO FURTHER INFORMATION ON ITS PROGRESS. WE WOULD ALSO EXPECT THAT IN THE FIRST DAY OR TWO OF SHELTER OCCUPANCY, PARTICULARLY IF THE EVACUEES WERE TO OCCUR ON THE WEEKEND, THAT THE SUPPLIES NECESSARY FOR SHELTER OPERATION WOULD COME FROM THE RACINE COUNTY COMMERCIAL SUPPLY CHANNEL. THAT BEING, THAT WE WOULD ISSUE PURCHASE ORDERS FOR FOOD STUFFS FROM LOCAL FOOD COOPS AND CHAINS. THIS MAY PLACE TEMPORARY SHORTAGES ON THE FOOD DISTRIBUTION SYSTEM UNTIL SUCH TIME AS THE FOOD SERVICE INDUSTRY CAN ADJUST TO ROUTING SUPPLIES WHICH NORMALLY WOULD GO TO THE KENOSHA COUNTY AREAS INTO RACINE AND WALWORTH COUNTIES. THE DIRECTING OF FOOD SUPPLIES AND OTHER ESSENTIAL ITEMS HAS NEVER, IN MY OPINION, BEEN ADEQUATELY ADDRESSED IN PREVIOUS PLANS AND IS ONLY BEING INVESTIGATED AT THE PRESENT TIME.

IN ADDITION, OF COURSE, THE GREATEST IMPACT WILL BE UPON THOSE SEGMENTS OF THE RACINE COMMUNITY THAT ARE IMMEDIATELY ADJACENT TO A SHELTER FACILITY. THESE AREAS WILL FACE INCREASED TRAFFIC FLOW, PARKING PROBLEMS, AND A VARIETY OF OTHER DIFFICULTIES WHICH WILL EXIST FOR THE PERIOD OF SHELTER STAY. ALTHOUGH THEY MAY BE INCONVENIENCED, WE DO NOT FEEL THAT THEY PRESENT ANY MAJOR THREAT TO THE PUBLIC SAFETY.

QUESTION:
DO YOU FEEL THE RESIDENTS OF RACINE COUNTY WILL WELCOME THE KENOSHA EVACUEES?

MR. JENSEN:
I THINK THAT THE RESIDENTS OF RACINE IN AN EMERGENCY SITUATION WILL BE QUITE SYMPATHETIC TO THE NEEDS OF THE KENOSHA POPULACE, AND ALTHOUGH RACINE COUNTY RESIDENTS MAY FACE INCONVENIENCES AS A RESULT OF THE KENOSHA CITIZENS MAKING TEMPORARY OCCUPANCY OF RACINE HOST SITES; I DO NOT FEEL THAT REPORTS OF ARMED CONFLICTS OR OTHER DIFFICULTIES ARE VALID. WE INTEND TO KEEP THE RACINE COUNTY POPULATION FULLY INFORMED ON THE SITUATION AS WE KNOW IT AND TO PROVIDE THEM WITH INFORMATION TO REASSURE THEM WHILE NOT INTENTIONALLY COVERING UP ANY ITEMS WHICH MAY BE DETRIMENTAL TO THE EVENTS WHICH ARE TAKING PLACE.

QUESTION:
HOW DO YOU INTEND TO DEAL WITH THE RUMOR SITUATION?

MR. JENSEN:
UNDER PRESENT PLANS, ALL RUMOR CONTROL FOR ALL THREE COUNTIES WILL BE UNDER THE DIRECTION OF A JOINT PUBLIC INFORMATION CENTER (JPIC) WHICH WOULD BE ESTABLISHED AT ZION, ILLINOIS UNDER A COOPERATIVE EFFORT OF THE STATE OF WISCONSIN AND ILLINOIS. WE HAVE BEEN INFORMED BY STATE AUTHORITIES THAT IT IS THEIR RESPONSIBILITY TO ACT AS THE RUMOR CONTROL AGENCY. HOWEVER, I STILL WOULD ANTICIPATE NUMEROUS CALLS ENTERING OUR EMERGENCY SERVICES WITH QUESTIONS REGARDING RUMORS, FALSE INFORMATION, AND THE SITUATION AT HAND. WE WOULD AT THAT POINT IN TIME ACTIVATE THREE EMERGENCY RESERVE TELEPHONE LINES FOR RUMOR CONTROL AND BEGIN ADVERTISING THEIR NUMBERS THROUGH THE LOCAL MEDIA. I DO NOT FEEL THAT RACINE COUNTY CAN RELY UPON A JOINT PUBLIC INFORMATION CENTER LOCATED MANY MILES AWAY TO BE FULLY EFFECTIVE FOR RUMOR CONTROL IN OUR AREA. I SEE THE HESITANCY OF THE PUBLIC TO DIAL A LONG DISTANCE NUMBER. ALTHOUGH IT DOES FULLY MESH WITH THE PLANS THAT HAVE BEEN DEVELOPED BY THE STATE OF WISCONSIN, I FEEL LOCAL RUMOR CONTROL IS A MUST.

QUESTION:
ARE THE EMERGENCY SERVICES OF RACINE COUNTY READY TO DEAL WITH SUCH AN EMERGENCY?

MR. JENSEN:
I FEEL CONFIDENT THAT RACINE COUNTY EMERGENCY SERVICES ON ALMOST ALL LEVELS COULD DEAL WITH AN EMERGENCY AT THE ZION FACILITY. WE STILL HAVE A NUMBER OF PROBLEM AREAS TO WORK OUT, SUCH AS THE DISTRIBUTION OF POTASSIUM IODIDE TO MUTUAL AID WORKERS WHO MAY BE FORCED TO ENTER THE KENOSHA COUNTY AREA. FOR THE MOST PART, I WOULD HAVE TO SAY THAT RACINE COUNTY'S ABILITY CAN BE CONSIDERED WELL ABOVE AVERAGE.

QUESTION:
DO YOU FEEL THE PLANS MADE BY RACINE COUNTY ARE ADEQUATE TO DEAL WITH A MAJOR EMERGENCY INVOLVING AN EVACUATION AT THE ZION FACILITY?

MR. JENSEN:
I FEEL THAT THE PLANS WE PRESENTLY HAVE COULD BE CONSIDERED AS ADEQUATE TO DEAL WITH SUCH AN EVENT. HOWEVER, I FEEL THERE ARE SEVERAL AREAS WHERE IMPROVEMENT IS NEEDED AND IT IS IN THOSE AREAS WHERE WE ARE WORKING DILIGENTLY TO CORRECT ANY AND ALL DEFICIENCIES. I THINK AT THIS TIME IT IS IMPORTANT TO UNDERSTAND THAT RACINE ACTUALLY HAS TWO SETS OF PLANS TO DEAL WITH AN EMERGENCY AT THE ZION FACILITY. THE FIRST SET OF PLANS WHICH WE HAVE ARE THOSE WHICH WOULD ACTUALLY BE UTILIZED SHOULD AN EMERGENCY AT THE POWER PLANT OCCUR. THESE TABS OR APPENDICES ARE PORTIONS OF OUR ENTIRE COUNTY DISASTER PLANNING INSTRUMENT AND PROVIDE FOR THE EFFICIENT MESHING OF A VARIETY OF AGENCIES TO ACCOMPLISH ONE GOAL OR TASK. WE HAVE MADE ZION ATTACHMENTS TO THESE PLANNING DOCUMENTS WHICH ARE IN USE ON AN ALMOST DAY-TO-DAY BASIS. THE DOCUMENT FOR RACINE COUNTY DEVELOPED TO MEET THE CRITERIA SET FORTH BY NUREG-0654 IN EFFECT EXISTS AS A PAPERWORK DOCUMENT. THE INFORMATION CONTAINED IN THIS PLAN IS DRAWN FROM PREVIOUSLY ESTABLISHED EMERGENCY PLANS FOR THE SOLE PURPOSE OF MEETING THE FORMAT AND CHECK OFF REQUIREMENTS OF THE NUREG-0654 DOCUMENT. IN MY OPINION, THIS DUPLICATION OF PLANNING EFFORT IS A COMPLETE WASTE OF TIME, SINCE THE PLANNING PROCESS IN RACINE ON THE LOCAL LEVEL FAR EXCEEDS THE REQUIREMENTS OF NUREG-0654. THE TESTING OF THE PLAN DEVELOPED UNDER NUREG-0654 WOULD APPEAR TO BE SOLELY FOR THE BENEFIT OF THE NUCLEAR POWER PLANT, RATHER THAN A TRUE TEST OF THE COUNTY'S CAPABILITIES TO AN INCIDENT. WHILE RACINE COUNTY HAS PLANS AND WILL CONTINUE TO PLAN FOR AN ACCIDENT AT THE ZION FACILITY, I FEEL THAT RACINE COUNTY WILL CONTINUE TO OBJECT TO THE DUPLICATION OF THIS EFFORT TO CREATE A PAPER DOCUMENT MEETING NUREG-0654 GUIDELINES SO THAT THE ZION FACILITY MAY BE LICENSED FOR CONTINUED OPERATION.

QUESTION:
DO YOU HAVE ANY OTHER MATTERS WHICH YOU WISH TO ADDRESS AT THIS TIME?

MR. JENSEN:
ONLY THAT I FEEL IN MAJOR POPULATION AREAS SUCH AS RACINE, KENOSHA AND WALWORTH COUNTIES WE WILL EXPERIENCE MANY UNIQUE PROBLEMS WHICH DO NOT EFFECT THE MAJORITY OF NUCLEAR POWER PLANTS. SOME SHELTERS IN RACINE COUNTY HOLD AS MANY PEOPLE AS ARE IN THE ENTIRE NEXT EMERGENCY PLANNING ZONE FOR OTHER POWER FACILITIES. THE GENERALIZATION OF PLANNING GUIDELINES AND INFORMATION PRESENTLY IN USE WOULD APPEAR TO UNDER-ESTIMATE THE MAGNITUDE OF THE PROBLEMS THAT COULD BE EXPECTED IN HIGH POPULATION ZONES. IT HAS ONLY BEEN THROUGH LOCAL EFFORTS THAT SUCH AREAS HAVE BEEN ADDRESSED AND SOLUTIONS ATTEMPTED. I FEEL THAT IN DEALING WITH A PROBLEM OF SUCH MAGNITUDE BOTH IN RACINE AND WALWORTH COUNTIES, MORE ADEQUATE FUNDING RESOURCES FROM THE CONGRESS OR THE POWER INDUSTRY ITSELF MUST BE MADE AVAILABLE TO LOCAL GOVERNMENTS TO ASSIST THEM IN DEALING WITH A SITUATION SUCH AS THIS. I HAVE NO CONCERNS THAT IT IS THE RESPONSIBILITY OF LOCAL GOVERNMENT TO PLAN AND PREPARE FOR THE SAFETY AND WELFARE OF ITS CITIZENS IN THE EVENT OF A NATURAL DISASTER OR OTHER INCIDENT WHERE THE TAX PAYING POPULATION IS THREATENED. HOWEVER, I RAISE A NUMBER OF QUESTIONS AS TO WHETHER IT IS THE RESPONSIBILITY OF ONE LOCAL GOVERNMENT BODY TO PLAN FOR THE CARE AND FEEDING OF THE RESIDENTS FROM ANOTHER POLITICAL BODY DUE TO THE THREAT OF A COMMERCIAL ENDEAVOR LOCATED IN AN ADJOINING STATE.

OUR LOCAL MUNICIPALITIES ARE UNABLE TO TAX THIS BODY TO RECEIVE A RENUMERATION FOR THE TIME, STAFF AND TALENTS EXPENDED ON ITS BEHALF FOR DEALING WITH AN EMERGENCY AT A COMMERCIALLY PROFITABLE SITE. WE DO PLAN FOR INDUSTRIAL EMERGENCIES IN RACINE COUNTY INVOLVING RACINE AND ADJOINING COUNTY RESIDENTS, BUT IT MUST BE REMEMBERED THAT SUCH INDUSTRIES ARE PROVIDING A TAX BASE TO RACINE OR THE STATE OF WISCONSIN IN RENUMERATION OF SUCH SERVICES. I FEEL THE ZION FACILITY IS UNIQUE IN THAT IT DOES EFFECT SUCH A LARGE POPULATION ZONE AND DOES IMPACT ACROSS NUMEROUS POLITICAL BOUNDARIES INCLUDING THE BORDER BETWEEN TWO STATES. I FEEL THAT AT SOME TIME IN THE FUTURE THESE AREAS MUST BE ADDRESSED IN A FIRM AND REALISTIC MANNER TO ELIMINATE THE CONFUSION WHICH HAS OCCURRED IN THE PAST.

QUESTION:
MAY THE COMMITTEE OR ITS STAFF USE YOU AND YOUR OFFICE AS A RESOURCE IN THE FUTURE IF IT IS REQUIRED?

MR. JENSEN:
IF I MAY BE OF FURTHER SERVICE IN PROVIDING THE COMMITTEE WITH TESTIMONY, YOU CAN REST ASSURED YOU WILL RECEIVE MY FULL COOPERATION TO THE EXTENT IT IS POSSIBLE.

COUNTY OF SUFFOLK

OFFICE OF THE COUNTY EXECUTIVE

PETER F. COHALAN
SUFFOLK COUNTY EXECUTIVE

JOHN C. GALLAGHER
CHIEF DEPUTY

May 19, 1983

Honorable Alan Kooi Simpson
U.S. House Of Representatives
709 Hart Office Building
Washington, D.C. 20510

Dear Senator Simpson:

On April 15, 1983, the Subcommittee on Nuclear Regulation held hearings on the issue of radiological emergency planning. It is my understanding that the controversy surrounding the Shoreham Nuclear Power Station and the County's decision not to adopt or implement a radiological emergency response plan for the Shoreham plant were subjects of much of the testimony on that date. Therefore, I appreciate this opportunity to submit for the record the enclosed statement which sets forth the County's actions on radiological emergency planning.

Suffolk County has approached its emergency planning responsibilities with deliberate care and seriousness. We have an obligation to do so under constitutional and statutory duties to protect the public health, safety, and welfare of our citizenry. We have sought to be sensitive to the documented lessons of the Three Mile Island accident, and have expressed the determination to avoid a situation where--as at TMI--there were only "paper plans" which provided no preparedness for effective response after the emergency rose.

In early 1982, Suffolk County commenced a year-long effort to develop an emergency plan which accounted for the geographical, demographic, topographic and other specific features of Long Island, the actual human behavior to expect in a radiological emergency, and the lessons learned from

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the accident at Three Mile Island. The County retained a team of experts of national repute to develop such a plan, and expended more than $600,000 in the planning effort. Following the preparation of a draft emergency plan by those experts, eight days of hearings were held by the County Legislature to hear the testimony of experts and members of the public. Subsequently, the Legislature travelled to the Three Mile Island area to meet with local government officials there.

The County's emergency planning process demonstrated that the conditions existing on Long Island pose insurmountable obstacles to effective emergency preparedness. In particular, these obstacles include Long Island's narrow geographical configuration and limited roadway network which contribute to making timely evacuation of the public unworkable. Given the impossibility of timely evacuation, the County government had no responsible choice but to tell the public the truth: namely, that they would not be protected in the event of a serious nuclear accident at the Shoreham plant. Had we done otherwise, we would have misled the public into believing they were being protected when in fact they were not.

Contrary to accusations made before the Subcommittee by several representatives of the nuclear power industry, the County did not act to "veto" the Shoreham Nuclear Power Station or to play some form of local political gamesmanship. The officials of this County were elected to be stewards of the public welfare and to tell the truth--and that is simply what we have done. We have stated the fact that Suffolk County cannot be safely evacuated in a radiological emergency. We believe that fact firmly, and based upon the evidence which we have carefully considered, it is our duty as governmental officials not to hide that fact from our constituents. Those who now accuse us of ulterior motives do nothing but cheapen the value of public safety and the role of representative local government.

Suffolk County takes strong exception to the testimony of the American Nuclear Energy Council, recommending that Congress consider legislation which would permit a purported local emergency plan which was prepared independently by a utility to be approved, and a nuclear plant to be licensed, without consideration of whether that plan would actually be implemented. Such an approach to emergency planning would eliminate in one stroke the standard of meaningful emergency preparedness, and would institutionalize by Federal fiat the legitimacy of emergency preparedness which is supported only by mere "paper plans."

Suffolk County's position on emergency planning has been consistent over the past several years--always premised upon the County's duty to protect the public. In 1977, the County intervened in the Shoreham operating licensing proceeding, submitting three contentions questioning the feasibility of emergency planning for Shoreham. However, I notice that the testimony of the Atomic Industrial Forum has attempted to portray the County as an obstructionist local government which decided abruptly, for political reasons, to alter its stance on emergency planning only last year. In so doing, the Forum has distorted the facts and omitted from its verion of the history of the Shoreham matter the key fact that as far back as 1977 the County voiced its concerns to LILCO and the NRC about the infeasibility of emergency planning for Shoreham--concerns which were greatly heightened by the events at Three Mile Island and which have still not been allayed. I refer you to the enclosed statement at pages 3-19 for a more detailed explanation of the County's concerns with emergency planning and the history of the County involvement in emergency planning.

Suffolk County appreciates this opportunity to provide a statement of its position for the record. I look forward to meeting with you in order to respond to any questions you may have.

Sincerely yours,

Peter F. Cohalan

PETER F. COHALAN
SUFFOLK COUNTY EXECUTIVE

PFC/tk
enc.

STATEMENT OF
SUFFOLK COUNTY EXECUTIVE
PETER F. COHALAN

I. INTRODUCTION

The Shoreham Nuclear Power Station, an 820 MW boiling water reactor (BWR), is being constructed by the Long Island Lighting Company (LILCO) within Suffolk County on the north shore of Long Island near the village of Wading River. Construction of the plant, now nearing completion, has been ongoing for well over a decade at a cost estimated to be $3.2 billion.1/ LILCO's most recent prediction is that the plant will be ready to load fuel in August of this year, with commercial operation to follow sometime in 1984.

Under the Constitution of the State of New York and the Municipal Home Rule Law, Suffolk County has an obligation to protect the health, welfare and safety of its 1.3 million citizens -- a population that swells enormously during the summer tourist season. Never before, however, has the County been faced with the task of planning for an emergency with the potential magnitude and complexity of a nuclear accident at Shoreham. A serious nuclear accident at Shoreham would release significant radioactive fission products into the environment. The impact of such an accident on the health, welfare, and safety of the people of Suffolk County and the value of its property would be severe.

1/ Representing more than a 1100% cost overrun.

Many circumstances existing on Long Island make emergency planning and preparing for a Shoreham accident a particularly difficult task. For example, the unique configuration of Long Island, an elongated, narrow island, as well as its limited road network, present problems for any attempted evacuation. A 360 degree dispersal of evacuating traffic is impossible. Furthermore, the unique nature of radiation -- being an invisible hazard undetectable by human senses -- is likely to cause behavior that will hamper the effectiveness of any evacuation as people attempt to retreat from a danger they cannot see, hear, touch or smell. Finally, a radiological emergency of the magnitude that could occur at Shoreham would place overwhelming demands upon County resources, but significant numbers of emergency personnel are expected to concern themselves first with the safety of their families.

To be workable, any plan developed to meet the threat of a radiological emergency at Shoreham must take into account and overcome these unique problems. Therefore, in early 1982, the Suffolk County Government, exercising its duty to protect public health, safety, and welfare, undertook to develop a plan for a radiological emergency at Shoreham that was sensitive to the local conditions existing on Long Island. In so doing, it commissioned the talents of nationally-known experts in the scientific and technical disciplines related to radiological emergency response planning. After many months of effort and the expenditure of over $600,000, the emergency planning team developed the best possible plan for Suffolk County -- one that was sensitive to the unique problems of Long Island and to human behavior. This Draft County Plan was placed before the County Legislature in December 1982 and was the focus of hearings before the Legislature from January 17-27, 1983.

Though the Draft County Plan was the best that could be devised, the data compiled by the County's experts and the testimony before the County Legislature compelled the conclusion that the Draft Plan should be rejected and that, in fact, no emergency response plan could protect the health, welfare and safety of Suffolk County's residents from an accident at Shoreham. The following facts, which are discussed later in more detail, support the County's conclusions:

1. A nuclear accident at Shoreham that caused the release of significant radiation into the environment of Suffolk County would have a serious impact on the health, safety and welfare of Suffolk County's residents. Computer analyses reveal that even if the public were to take protective actions, there could be a mean of 15 and up to 577 deaths, along with a mean of 18 and up to 1270 illnesses within 60 to 90 days of radiation exposure. Thousands of cancer incidences and fatalities could result. In addition, a nuclear accident at Shoreham could cause genetic diseases in future generations and serious psychological distress.

2. Analysis of the amounts of radiation which would be released during an accident and studies of human evacuation behavior lead to the conclusion that an Emergency Planning Zone ("EPZ") smaller than 20 miles is inadequate for the protection of the residents of Suffolk County. The traffic analyses and evacuation time estimates performed by the County's experts demonstrate that it would take as much as 14 to 30 hours to evacuate most sectors of the EPZ, particularly the more populous western sectors. Such slow evacuation times are a result of the elongated, narrow shape of the island, a very limited number of appropriate evacuation routes, and the large numbers of voluntary evacuees who, according to studies conducted by the County and data gathered from Three Mile Island, would attempt to evacuate though not advised to do so (the so-called evacuation shadow phenomenon).

3. Any attempt to evacuate the western sectors of the EPZ would result in automobiles being stranded for hours in traffic queues, leaving the occupants exposed to the hazards of the radiological plume. In addition, automobiles cannot be expected to operate for such long periods without many running out of gas. Therefore, evacuation is not an acceptable protective action for most sectors of the EPZ. On the other hand, sheltering (staying indoors), the only other available protective action, would expose the residents of Suffolk County within the EPZ to unacceptable doses of radiation, resulting in

thousands of increased incidences of cancer and cancer fatalities.

4. Any radiological emergency response plan depends upon the availability of large numbers of emergency personnel to perform a number of essential tasks. However, studies conducted for Suffolk County, and the testimony of several heads of County agencies, reveal that in the event of a radiological emergency, a significant number of emergency personnel may not report promptly, or even at all, for duty in a radiological emergency. The reason is that they will experience a role conflict between their responsibility to the job and their responsibility to their own spouses and children. In such cases, of course, the feasibility of an effective emergency response would be undermined.

Because of these largely insurmountable obstacles, both the Legislature and I concluded that no emergency plan can provide adequately for the protection of the public safety in the event of a nuclear accident at Shoreham. Thus, the Draft County Plan was rejected pursuant to Resolution No. 111-1983 (Exhibit 1) which was adopted by the Legislature on February 17, 1983, and was signed by me on January 23, 1983. In addition, LILCO's own proffered version of a purported County emergency plan, unauthorized by the County, was found to be grossly deficient in that it entirely ignores local needs and conditions. Therefore, that purported plan was also rejected by Resolution No. 111-1983. In short, the fundamental finding of Resolution No. 111-1983 was that, because of the inherent conditions on Long Island, there can be no preparedness adequate to protect the public safety, health and welfare in the event of a serious nuclear accident at Shoreham.

II. BACKGROUND

In September 1981, Suffolk County agreed to LILCO's request that the County develop a radiological emergency response plan (RERP) in anticipation of an accident at Shoreham. Such a plan -- effectively implemented by local governmental authorities -- is required before a utility can obtain an operating license from the United States Nuclear Regulatory Commission. The County assigned the task of developing the RERP to its Planning Department, which designated two of its staff persons for that purpose.

By the end of 1981, it became apparent to officials in both the Legislative and Executive branches of the Suffolk County Government that the plan was not being developed in a realistic manner. Further inquiry proved the planning effort to be deficient in many respects. In particular, the work up to that time: (1) ignored the unique configuration of Long Island and the problems it posed for an orderly evacuation; (2) largely overlooked the problems resulting from the limited roadway network available to Suffolk County residents for evacuation; (3) failed to analyze the health consequences to Suffolk County residents if evacuation and/or protective sheltering were instituted as protective actions to respond to a radiological emergency at Shoreham; (4) failed to account for the lessons learned during the accident at Three Mile Island (especially the human behavior exhibited during that emergency); (5) relied unrealistically on the willingness of all necessary emergency response personnel to report promptly for emergency response duties; and (6) ignored the dilemma faced by those residing on the eastern end of Long Island who could be trapped by a radioactive plume traversing the Island. Moreover, the dimensions of the emergency planning zone were not based on an analysis of the specific fission products that could be released from Shoreham and the consequent health effects to the public of such releases. In short, the plan being prepared in late 1981 and early 1982 was largely a paper exercise that ignored human behavior and the conditions existing on Long Island and thus was inadequate for the purpose of protecting the public from an accident at Shoreham.

Recognizing its duty to correct the deficiencies in the County's planning efforts, the Suffolk County Legislature on March 23, 1982, adopted Resolution No. 262-1982 (Exhibit 2) which ceased the planning effort then underway, returned to LILCO all money paid under the September 1981 agreement, and undertook to develop, at the County's own expense, a RERP that would be sensitive to the local conditions on Long Island. Recognizing also the County's duty as the protector of the public health, welfare and safety in Suffolk County, Resolution No. 262-1982 further required legislative approval prior to implementation of the RERP or its submittal to federal authorities for review:

> RESOLVED, that said plan shall not be operable and shall not be deemed adequate and capable of being implemented until such time as it is approved by the Suffolk County Legislature; and
>
> RESOLVED, that only after said plan is approved by the Suffolk County Legislature, shall it be submitted to the Federal Emergency Agency and the Nuclear Regulatory Commission for purposes of any findings, determinations, rulings, reviews, or hearings by such Federal agencies.

A sum of $375,000 was initially appropriated for plan development, which was subsequently augmented by further appropriations now totaling over $600,000.2/

2/ In a pleading submitted several weeks ago to the Nuclear Regulatory Commission (LILCO's Brief In Opposition To Suffolk County's Motion To Terminate This Proceeding and For Certification (March 18, 1983)), LILCO has attempted to portray the County's position on emergency planning as twelve years of complete harmony with LILCO, only to be abruptly abrogated without cause in 1982. In doing so, LILCO has severely mischaracterized the facts. Exhibit 3 entitled "Excerpts From The Shoreham Licensing Proceedings Regarding Emergency Planning" sets forth the facts which demonstrate that LILCO was on notice of the County's serious concerns that emergency preparedness might be impossible as early as 1970.

I signed Resolution No. 262-1982 on March 25, 1982 and four days later, by Executive Order, established a Steering Committee consisting of both County personnel and outside experts to oversee the plan's development. The Committee, chaired by Deputy County Executive Frank R. Jones, proceeded to gather a team of nationally-recognized experts including:

> Fred Finlayson, Ph.D., of Finlayson and Associates, an expert in the consequences of radiological accidents;
>
> Edward P. Radford, M.D., Professor of Environmental Epidemiology, University of Pittsburgh and former Chairman of the Committee on Biological Effects of Ionizing Radiation of the National Academy of Sciences;
>
> Philip B. Herr, Professor of Planning at MIT;
>
> Kai T. Erikson, Ph.D., Professor of Sociology, Yale University;
>
> James H. Johnson, Ph.D., Assistant Professor of Geography, UCLA;
>
> Donald J. Zeigler, Ph.D., Assistant Professor of Geography, Old Dominion University;
>
> PRC Voorhees of McLean, Virginia, a firm specializing in traffic planning;
>
> Robert J. Budnitz, Ph.D., of Future Resources Associates, Inc., an expert on the assessment of risks and accident probabilities at nuclear power plants;
>
> Stephen Cole, Ph.D., Professor of Sociology, Stony Brook.

The Steering Committee and its experts began work on the

RERP in mid-April under a demanding schedule and a mandate to be sensitive to human behavior and to confront the specific problems of developing a plan for Suffolk County. I explained the County's commitment in testimony before the Suffolk County Legislature on May 18, 1982:

> The County is engaged in a good faith effort to produce the best possible emergency plan and preparedness for the people of Suffolk County. This effort begins with the fundamental premise that the purpose of the emergency plan is to protect the people who would be affected by an accident at the Shoreham plant. To do this, there must be a meaningful, workable plan that addresses the realities of the particular conditions on the island. The analysis and planning must consider the particular types of accidents that could occur at Shoreham; the potential consequences of those accidents; the dispersion of radioactive releases on Long Island; the population -- that is, the concentrations of people -- affected by such dispersion of radioactivity; the potential health effects to those people; the social and psychological profile of Long Island; and finally, the types of actions necessary to protect the people who would be affected by the radioactive releases.
>
> In carrying out these analyses and related planning, the County's consultants have been instructed to emphasize practical considerations. Accordingly, they will apply the lessons of Three Mile Island and the studies which followed that accident. They will also pay particular attention to any problems associated with the east end of Long Island, including possible difficulties in evacuating persons living in east end communities.

The work of the experts, described more fully below, resulted in a plan comprised of three large volumes. I submitted the plan to the Legislature for review on December 2, 1982. For eight days, beginning on January 17, 1983 and ending on January 27, 1983, the Legislature held hearings on the plan, as required by Resolution No. 456-1982 (May 19, 1982) (Exhibit 4). During that time, it heard testimony from the heads and members of County agencies3/ and from witnesses put forth by both the County4/ and LILCO.5/ In addition, three days of the testimony were devoted to hearing from hundreds of members of the public, both in Riverhead and Hauppauge, and from concerned citizens groups, both pro- and anti-Shoreham. The sentiment of the public was highly skeptical of the feasibility of any effective evacuation from the island. At the conclusion of the hearings, the record consisted of 1,600 pages of transcript and many of pages of supplemental documents. In addition, the Legislature traveled to Harrisburg, Pennsylvania in February 1983,

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3/ Including the Suffolk County Police Department, the Department of Public Works, the Department of Health and the Department of Social Services.

4/ County experts included most of the County's emergency planning team as well as additional experts in the areas of health physics, psychology, and genetics.

5/ During LILCO's oral presentation before the County Legislature its primary witness, Dr. Matthew Cordaro, was accompanied by seven experts who offered their views on a broad range of topics connected with emergency planning. LILCO also submitted an 85-page written presentation to the County Legislature.

to hear testimony from local public officials and residents concerning the accident at Three Mile Island and the emergency planning lessons learned in its aftermath.

On February 16, 1983, I released a report based upon a thorough evaluation of the testimony before the Legislature and the data compiled by the County's experts. The 49-page report concluded that:

> The unique local conditions on Long Island create problems and obstacles which make it impossible to develop a radiological emergency response plan that protects the health, welfare and safety of the County's residents. In fact, there can be no emergency preparedness to protect the public safety in the event of a serious nuclear accident at the Shoreham plant. Therefore, the County Executive concludes that the Draft County RERP should be rejected. This is not a reflection upon the County's experts, whose efforts were diligent and whose work product was consistently excellent, but upon the insurmountable problems intrinsic in planning for a radiological accident on this island.
>
> In addition, any RERP that has not even attempted to confront and deal with the problems of local conditions and the obstacles they pose for emergency preparedness on Long Island and the likely human behavior in a radiological emergency in Suffolk County is obviously grossly deficient. Therefore, LILCO's RERP, submitted to the DPC without the authority of the County, should also be rejected by the Legislature as a paper exercise which would, at best, give only the vaguest illusion of preparedness.
>
> Finally, the data which have been compiled in the County's emergency planning efforts document that no RERP can be prepared and implemented that protects the health, welfare and safety of Suffolk County's citizens. Accordingly, the County Executive recommends that this fact be recognized and that the County terminate efforts to create emergency planning for a

> Shoreham accident. Such planning would be disingenuous -- creating the spectre that public health, safety and welfare can be protected when, in fact, the opposite is true.

On February 17, 1983, the Suffolk County Legislature adopted Resolution No. 111-1983 (Exhibit 1), which I signed on February 23. By this Resolution, the Legislature determined not to adopt or implement the Draft County RERP or any other RERP based upon the following pertinent findings:

> WHEREAS, the Draft County plan identifies evacuation and protective sheltering as the two primary protective actions which would need to be implemented in the event of a serious accident at Shoreham; and
>
> WHEREAS, evacuation of Suffolk County residents in the event of a radiological emergency could take as much time as 14-30 hours because of various factors, including: the limited number of appropriate evacuation routes in Suffolk County; difficulties in mobilizing police and other emergency personnel; difficulties ensuing from spontaneous evacuation of large numbers of County residents, thus creating severe traffic congestion; and unavailability of alternate evacuation routes for persons residing east of Shoreham and thus the necessity for such persons during an evacuation to pass by the plant and possibly through the radioactive plume; and
>
> WHEREAS, evacuation times in excess of 10 hours -- and certainly evacuation times in the range of 14-30 hours -- will result in virtual immobilization of evacuation and high exposure of evacuees to radiation such that evacuees' health, safety, and welfare would not be protected; and
>
> WHEREAS, protective sheltering is designed to protect persons from excessive

> radiation exposure by such persons staying indoors until radiation with the greatest danger to health has passed; and
>
> WHEREAS, if protective sheltering were ordered for Suffolk County residents, unacceptable radiation exposure would still be experienced by substantial portions of the Suffolk County population, thus making it impossible to provide for the health, welfare, and safety of these residents; and
>
> * * *
>
> WHEREAS, the extensive data which the Legislature has considered make clear that the site-specific circumstances and actual local conditions existing on Long Island, particularly its elongated east/west configuration which requires all evacuation routes from locations east of the plant to pass within a zone of predicted high radiation, the ineffectiveness of protective sheltering, the severe traffic congestion likely to be experienced if a partial or complete evacuation were ordered, and the difficulties in ensuring that emergency personnel will promptly report for emergency duties, preclude any emergency response plan, if implemented, from providing adequate preparedness to protect the health, welfare, and safety of Suffolk County residents;. . .

In light of these findings, Resolution No. 111-1983 adopted the following with respect to the County's Draft Plan and all other emergency plans:

> RESOLVED, that the Draft County plan submitted to the County Legislature on December 2, 1982, if implemented, would not protect the health, welfare, and safety of Suffolk County residents and thus is not approved and will not be implemented; and be it further
>
> * * *

> RESOLVED, that since no local radiological emergency response plan for a serious nuclear accident at Shoreham will protect the health, welfare, and safety of Suffolk County residents, and since the preparation and implementation of any such plan would be misleading to the public by indicating to County residents that their health, welfare, and safety are being protected when, in fact, such is not the case, the County's radiological emergency planning process is hereby terminated, and no local radiological emergency plan for response to an accident at the Shoreham plant shall be adopted or implemented.

The County thus unequivocally determined that it will not adopt or implement any RERP for Shoreham. Upon signing Resolution 111-1983 on February 23, 1983, I explained the County's position this way:

> If we were to [adopt a RERP], we would be putting into place a mere "paper plan" which purports to protect the public safety while it in fact does not. That action would betray the public trust, which we have been elected to preserve, and would create only the illusion of public protection. This government has made it clear that we will have no part of any such illusion.

Also on February 23, 1983, I signed Resolution No. 113-1983 (Exhibit 5) which the Legislature had passed on the previous day. That resolution directed me to take all necessary steps to assure that the cost and rate consequences of Shoreham not going on line will be borne justly among all appropriate parties.

III. LILCO'S UNAUTHORIZED RERP

The Draft County plan which I submitted to the Legislature on December 2, 1982, is not the only document which has been proferred as the County's RERP. Rather, despite the formation of the County's Steering Committee and the efforts of County experts to develop a RERP, LILCO -- without County approval or authorization -- packaged and submitted to the New York State Disaster Preparedness Commission (DPC), on May 10, 1982, a document purporting to be the local RERP for Suffolk County. The document was contained in two blue loose-leaf binders entitled "Suffolk County Radiological Emergency Response Plan." It consisted mostly of materials developed earlier by the County's two Planning Department staff members whose work had been discarded by Resolution No. 262-1982, supported by other materials which LILCO and its own contractors had prepared. Not only was the LILCO-submitted document sent to the DPC without any authorization from the County but, being based largely on the County's previously discarded work, it also failed to address the essential issues presented by local conditions on Long Island.

In a mailgram dated May 14, 1982, I informed Governor Carey and William Hennessey, Chairman of the DPC, that LILCO had no right or power to speak for the citizens of Suffolk County, that the County had not authorized LILCO to submit any document on the County's behalf, and asked the Commission not to review the unauthorized LILCO document. The mailgram concluded by reiterating the County's commitment to providing the greatest protection of the public:

> [The] Suffolk County Government is engaged in a serious good faith effort to prepare the best possible emergency plan to protect the public's safety. We trust that State officials will not permit themselves to be used by LILCO as pawns in LILCO's arrogant end run to the State around the critical interests of the people of Suffolk County. We therefore ask that the State promptly reject LILCO's inappropriate request.

Attempting to convince LILCO of the County's good faith efforts in emergency planning, Chief Deputy County Executive John C. Gallagher wrote the following in a letter dated May 17, 1982 to Dr. Matthew Cordaro, a vice president of LILCO:

> The County's emergency planning effort is being performed by a team of nationally recognized experts. A list of these experts is enclosed herewith for your information. The County Executive has informed these experts that Suffolk County wishes to develop the best possible emergency plan to protect the health and safety of the residents of Suffolk County. Needless to say, a meaningful, workable radiological emergency plan would also be in LILCO's best interests.
>
> * * *
>
> It is the County's hope that LILCO will promptly terminate its resistance to the County's good faith emergency planning efforts. An increasing amount of the County's time is being consumed by the need to respond to seemingly belligerent actions of LILCO that challenge the County's current effort. I ask that you convey to your colleagues these serious sentiments, and that LILCO refrain from escalating further with rhetoric or deed any difference which

> exists between LILCO and the County with respect to the critical goal of effective radiological emergency preparedness.

The County Legislature also protested against LILCO's attempted usurpation of the County's duty to provide for the health, welfare, and safety of its citizens. By Resolution No. 456-1982 (May 18, 1982) (Exhibit 4), the County Legislature reaffirmed its "primary responsibility for the protection of its residents in the event of a radiological emergency at [Shoreham]" and its serious intention "through good faith and sound planning efforts, to assure that the best possible emergency plan and preparedness are developed to protect the citizens of Suffolk County." Similarly, Resolution No. 457-1982 (Exhibit 6), passed the same day, also recognized the County's "sworn duty to protect the health and safety of the people of Suffolk County," for which it "has commissioned studies to determine all planning facets that are essential in developing a viable [RERP]." Both resolutions condemned LILCO for submitting to the DPC an unauthorized RERP purporting to be for Suffolk County and reiterated that the only RERP that would be implemented in Suffolk County would be one adopted by the Legislature. Resolution No. 457-1982 further served to inform the Governor, the State Legislature, and the DPC that the County vehemently opposed any action by the State which gave credibility or dignity to LILCO's unauthorized document.

Notwithstanding the County's attempts to explain its position and its protests against any usurpation of its authority, LILCO continued to press for review of its unauthorized RERP by the DPC staff. The DPC staff complied with LILCO's wishes but its review resulted on June 9, 1982 in the determination that LILCO's plan was deficient in numerous areas and thus was "unsatisfactory for submission to the full Commission."

Meanwhile, the County's Steering Committee and its experts continued to develop a County RERP. However, on October 6, 1982, LILCO submitted an amended version of its unauthorized RERP to the DPC, claiming to have corrected the deficiencies found earlier by the Commission's staff. The letter accompanying LILCO's submittal conceded that:

> "...neither our original plan which we submitted on May 10, 1982, or this revised plan, has been approved by Suffolk County. We note that no direct contact was made with Suffolk County personnel regarding any of the changes contained in the enclosures."

Again, the unauthorized RERP failed to address the crucial problems being faced by the County's planners.

Mr. Hennessey advised the County by letter of November 12, 1982 that he would request the DPC to review the LILCO RERP. In reply, Deputy Suffolk County Executive Frank R. Jones informed Mr. Hennessey by letter of November 22, 1982 that LILCO's RERP for Suffolk County was without County approval, that "LILCO's document is not and never will be the local

[RERP] for Shoreham," and urged the DPC not to review the document, particularly in light of the fact that release of the Draft County plan was imminent. Again ignoring the County's protests, Mr. Hennessey replied by letter on November 29, 1982 that the DPC intended to hold a meeting on December 8, 1982, to consider the LILCO document and invited the County to attend.

I submitted the County's RERP to the Suffolk County Legislature for its review on December 2, 1982. A copy of the County RERP was sent the same day to Mr. Hennessey and the DPC for informational purposes. In spite of the existence of the County's draft RERP, Mr. Hennessey informed Deputy County Executive Frank R. Jones the next day in a telephone conversation that the DPC still intended to review and to approve LILCO's document at the December 8 DPC meeting. I protested the DPC's proposed actions in mailgrams sent to Mr. Hennessey and Governor Carey on December 4, 1982, informing them that the DPC had no authority to review the LILCO document and demanding that the DPC neither review nor approve that document at its December 8 meeting.

In the absence of a satisfactory response from the DPC, the County commenced legal action. On December 2, 1982, the Supreme Court sitting in Albany County issued a Temporary Restraining Order, prohibiting any review of LILCO's plan pending a hearing on the County's request for a preliminary injunction. On December 15, 1982, the County, the DPC and LILCO entered into an agreement by which the DPC agreed to refrain from reviewing LILCO's RERP until the County Legislature had an opportunity to review and decide upon the adequacy of the County's RERP, but in no case later than February 22, 1983.

It is important to bear in mind one important fact about LILCO's plan. Even if the LILCO-submitted document were implemented, it would be grossly inadequate. Not only does it fail to deal with the realities of the health consequences which would be suffered if an evacuation and/or protective sheltering were ordered, the LILCO document totally fails to deal with the actual local conditions which exist on Long Island. Thus, this document fails to address:

(a) the portions of the population which must be planned for so as to prepare them for response to a radiological accident at Shoreham;

(b) The geographical areas of Suffolk County affected directly by radiation released by a serious accident at Shoreham;

(c) the effects of meteorlogical conditions and frequently changing wind direction on actions required by local government and the public to protect the affected population from adverse health consequences of radiation released by a serious accident at Shoreham;

(d) the large number of persons who would be required to evacuate in the event of a serious accident at Shoreham;

(e) the large number of persons who would voluntarily evacuate in the event of a serious accident at Shoreham;

(f) the difficulty of mobilizing police and other emergency workers on a timely basis;

(g) the number of school bus drivers and other emergency workers who have stated their intentions to unite and take protective actions with their own families rather than reporting for work in the event of a serious accident at Shoreham;

(h) the amount of time it would realistically take to evacuate the population affected by a serious accident at Shoreham;

(i) the effects of inevitable breakdowns and accidents of automobiles during evacuation and the effects of automobiles running out of gasoline and immobilizing evacuation routes;

(j) the impacts of likely human behavior on the effectiveness of evacuation and protective sheltering, particularly given the actual and perceived constraints caused by the limited road network in Suffolk County;

(k) the particular problems of persons residing in the east end of Long Island, from which evacuation would require travelling toward Shoreham and into areas of traffic congestion and highest potential radiation concentration;

(l) other local conditions and effects addressed by the analyses, studies, and surveys performed by the County's expert consultants and others who presented statements and testimony at the Legislature's public hearings.

In short, LILCO's unauthorized "plan" is merely paper which even if implemented could never provide any preparedness to protect the health, welfare and safety of Suffolk County's citizens. In light of these deficiencies, the County Legislature, through Resolution 111-1983, found that:

> [T]he document submitted by LILCO to the DPC without County approval or authorization is deficient because it does not deal with the actual local conditions, physical and behavioral, on Long Island that would be encountered during a serious nuclear accident at Shoreham; and
>
> [T]he document submitted by LILCO to the DPC without County approval or authorization does not ensure that effective protective action by persons subject to radiation exposure, in the form of evacuation or sheltering, would be taken in event of a serious nuclear accident at Shoreham, and thus such document, even if implemented, would not protect the health, safety, and welfare of Suffolk County residents;. . .

Therefore, the Legislature rejected LILCO's unauthorized plan as totally unworkable.

> RESOLVED, that the document submitted by LILCO to the DPC without the County approval or authorization, if implemented, would not protect the health, welfare, and safety of Suffolk residents and thus will not be approved and will not be implemented. . .

IV. THE DRAFT SUFFOLK COUNTY RADIOLOGICAL EMERGENCY RESPONSE PLAN

The Draft RERP which I submitted to the Legislature on December 2, 1982 represents many months of work by the County's team of experts. It consists of three large volumes totaling approximately 777 pages. The Draft RERP is the best plan that could be developed for Long Island, but the key question before the Legislature was whether, given the unique circumstances on Long Island, the best is good enough. As Mr. Philip Herr, a member of the Steering Committee and Professor of Planning at MIT, told the Legislature:

> I am satisfied that the County in fact engaged impeccably qualified advisors, that those advisors were given free rein to reach their own conclusions and that a sound and thorough job has been done in bringing the plan to this point. I am satisfied that the response plan is just about as good as could be devised for this circumstance, and that the consequence estimates are fully supportable by scientific analysis.
>
> Even though the plan is about as good as can be achieved, the outcomes may be unsatisfactory to some of you. The risk is not and could not be reduced to zero. In the event of a severe plant accident, there are likely to be substantial public health consequences, not because of any emergency plan failure, but because that plant at that location makes those consequences essentially unavoidable.
>
> Deciding whether or not those consequences are acceptably remote and small in relation to other considerations is not our charge. Rather, we want only to make clear what the consequences resulting from an accident might be given implementation of the best plan we can devise.

Tr. 11-12.

The following is a review of the plan's major features. This review demonstrates that the Draft County RERP, while conscientiously prepared, cannot protect the public health, safety and welfare in the event of a severe accident at Shoreham.

A. The Emergency Planning Zone (EPZ)

The EPZ developed by the County's experts relies largely upon the consequence analysis performed by Dr. Finlayson, the health effects expertise of Dr. Radford, and the need to accommodate the evacuation shadow phenomenon studied by Drs. Johnson, Zeigler and Cole (see below). The EPZ consists of an area approximately 20 miles in radius from the Shoreham plant, divided into 7 sectors. See Herr, Discussion Overview (Exhibit 7) at 4. The first sector is the so-called "inner sector" which is an area approximately five to seven miles in radius from the Shoreham plant. The remaining six sectors are approximately 30 degree segments that radiate from the outer boundary of the inner sector to the outer boundary of the EPZ.

With respect to radiation doses and the health effects of such doses, the characteristics of the EPZ were developed according to the following criteria. It was the overall objective of the planning effort to limit doses to the population as much as possible. For very serious accidents, the first priority was to prevent the public from receiving life-threatening doses. In the case of less severe accidents, the goal was to limit doses below those that would cause early injuries (vomiting, fatigue, etc.). RERP, Vol. II, Document 2 (Finlayson and Radford, Basis For Selection of Emergency Planning Zones for the Shoreham Nuclear Power Plant)[hereinafter Finlayson and Radford] at 47; Tr. 1131, 1185.

The 20-mile outer limit of the EPZ seeks to meet both of these criteria. Two hundred rems to the whole body is the level at which early deaths (those occurring within several weeks of exposure) occur. As the EPZ is presently structured, during severe accidents the chance of receiving such a potentially fatal dose of radiation outside of the EPZ (i.e., beyond 20 miles) is very small. Id. at 48; Tr. 1132. Thirty rems to the whole body represents the point at which detectable physical damage can occur. Tr., Jan. 27, 1983, Attachment A at 4.[6] In the case of a less severe core melt accident, there is no more than a 1 percent chance of receiving more than 30 rems outside of the EPZ. Finlayson and Radford at 48; Tr. 1131. Thus, the 20 mile EPZ is required to provide protective actions for those actually in danger of suffering early injuries or fatalities in the event of an accident at Shoreham.

The existence of the inner zone reflects the fact that those closest to the plant are in the greatest danger. The time allowed for people to take protective action within this zone will be relatively brief because the wind (which would carry radioactive particles during a severe accident) often blows at a speed of ten miles per hour or more in the Shoreham vicinity and shifts direction frequently. Thus, if evacuation was deemed necessary, the entire inner zone would always be evacuated to ensure that wind shifts would not catch part of the population within the inner zone unprepared. Id. at 50.

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[6] In addition to oral testimony, the Legislature received written statements from most of the witnesses who appeared before it. In most cases, those statements were included in the transcripts of the hearing as attachments. Statements bound into the transcripts will be cited by transcript date and alphabetical designation (Attachment A, Attachment B, etc.).

The six sectors between the inner sector and the outer boundary of the EPZ provide flexibility in the emergency response. Since a plume of fission products released from the Shoreham plant would follow the direction of the wind, protective actions would be recommended for the sector along which the wind was traveling, as well as both adjacent sectors. Id. at 50. The other sectors, whose population would be in no immediate danger, would not be ordered to take protective actions such as evacuation or sheltering (but note the problems of the evacuation shadow phenomenon described below).

It is important to note, however, that the development of the EPZ and protective actions within the EPZ do not guarantee freedom from risk. Tr. 1135. Dr. Finlayson's consequence analysis determined that even where protective actions are taken, the more probable of the severe core melt accidents could cause a maximum of 577 early fatalities within the EPZ with a mean number of 15.2. The same accident could cause a maximum of 1,270 early injuries within the EPZ with a mean of 18. Failure to take protective actions would increase those numbers substantially. Finlayson and Radford at 35.7/

7/ In contrast, compare the results of a study conducted by Sandia National Laboratories (Technical Guidance for Siting Criteria Development, NUREG/CR-2239, SAND81-1549) which concluded that a "worst case" accident at Shoreham would result in 40,000 early deaths, 75,000 early injuries and 35,000 cancer fatalities.

Cancer fatalities would also occur within the EPZ, ranging from a few to over 1,700, depending upon delay time (time between public notice of accident and taking of protective action) and evacuation speed. *Id.* at Table 8. It is also interesting to note that most fatal cancers, up to 7,000, will occur outside the EPZ, whether protective actions are taken or not. *Id.*

B. The Inadequacy of a 10-Mile EPZ

LILCO, in its testimony before the Legislature on January 18, 1983, was critical of the dimensions of the County's EPZ, urging that the County adopt an EPZ of only 10 miles in radius, such as presented in LILCO's unauthorized submittals to the DPC. LILCO prepared statement at 33-41;[8] Tr. 175-177. However, LILCO's criticism appears to be based in large part on a lack of understanding of the risk criteria by which the County derived the EPZ.

In criticizing the 20-mile zone, LILCO stated that:

> The County consultants used 200 rems as the dose above which early deaths from radiation can occur. They then chose a 1% conditional probability as their criterion and found that, according to the plot, the chance of receiving 200 rems would be only 1 in 100, even assuming a core-melt accident occurs. This analysis produced the 5-7 mile "inner ring."

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[8] As part of its presentation to the Legislature, LILCO submitted an 85-page document explaining its position on emergency planning into the record. That document, though not included in a transcript, became part of the hearing record. It will be cited as "LILCO's prepared statement."

> *This "inner ring," it is important to recognize, corresponds in concept to the Federal government's 10-mile EPZ*. The reason the former is 5-7 miles in radius while the latter is 10 miles is that the calculated results of accidents at the Shoreham plant are less severe than the results calculated in NUREG-0396. *In other words, had the County planners used the same risk criterion that the Federal government used, but with the Shoreham-specific draft PRA, they would have come up with an emergency planning zone of substantially less than the 10-mile EPZ required by the Federal government*. [Emphasis added.]

LILCO prepared statement at 39. As is clear from this explanation of the County's EPZ criteria, LILCO has misunderstood the use of the 200 rem dose level. Contrary to LILCO's characterization, the inner sector was not based on any dose level at all, but rather was an attempt to identify an area where rapid protective responses were most essential, due to its proximity to the plant. Actually, the 200 rem dose level *for the most severe core melt accidents* was one of the criteria for establishing *the outer edge of the EPZ*, not the 5-7 mile inner sector. LILCO's misunderstanding of these essential factors led it to conclude erroneously that the 5-7 mile zone "corresponds in concept" to a 10-mile EPZ, which it clearly does not.

More importantly, however, LILCO's above testimony asserts that if the County's planners had used federal risk criteria, the EPZ they would have calculated would be less than 10 miles.

Again, LILCO's assertion is inaccurate. Federal risk criteria as set forth in NUREG 0654 provide that projected doses beyond the EPZ should be below the EPA's Protective Action Guide (PAG) levels. See NUREG 0654 at 12. The upper bound of the PAG levels is 5 rems to the whole body. If the County planners had rigidly adhered to those guidelines and set the EPZ at a point where there was less than a 1 percent chance of exceeding 5 rems, the EPZ would have been approximately 60 miles in radius, not less than 10 miles. See Finlayson and Radford, Figure 12.9/

It is evident from the County's analyses that nothing less than a 20 mile EPZ will offer adequate protection to the public. The consequences of an EPZ less than 20 miles are too severe to justify a smaller EPZ such as LILCO suggests. As Dr. Finlayson testified, if the County were to adopt a 10 mile EPZ, in a severe accident there would be a 35 percent chance of receiving 200 rems (enough to cause early fatalities) and a 60 percent chance of receiving 30 rems outside the EPZ. Tr. 1142;

9/ LILCO also testified that the County's experts failed to account for the lower potential dose levels caused by the "scrubbing action" of Shoreham's suppression pool (a feature of boiling water reactors) and by the interaction of fission products with other elements. LILCO prepared testimony at 42-52; Tr. 253. However, as Dr. Finlayson testified, both factors were accounted for in the County's analyses. Tr. 1144. Indeed, it should be borne in mind that the fission product release values used by the County's experts are precisely those that were derived by LILCO's own consultant, Science Applications, Inc.

see also Finlayson and Radford, Figure 11. Even in a less severe core melt accident, a 10 mile EPZ would provide a 50 percent chance of receiving 10 rems and a 20 percent chance of receiving 30 rems. See Finlayson and Radford, Figure 12. Clearly, those risks are unacceptable. Therefore, a 10-mile EPZ, and indeed anything less than a 20-mile EPZ, would be ill-advised.

If any adjustments should be made to the EPZ, they should be directed outward. Tr. 15; see also Tr. 1459. Such an outward adjustment, however, would significantly increase the complexity and costs of planning for a radiological emergency. As Mr. Herr testified:

> Stated another way, the EPZ is sized so that in the event of a core-melt accident, early fatalities will not occur outside of it, exposure high enough to make detectable blood changes has only a one percent chance of happening inside of it, and the EPA protective action threshold has a 50-50 chance of being exceeded.
>
> No smaller EPZ would allow that level of safety outside of the zone. A 10-mile EPZ, for example, would place a large number of persons at substantial risk outside of the EPZ.
>
> A larger EPZ would be feasible but at the price of added complexity and cost to a variety of local agencies such as the schools. [Emphasis added]

Tr. 15.

C. Sociological and Psychological Issues In Emergency Planning

1. Overreaction and the Evacuation Shadow Phenomenon

One of the key issues confronting the County's planners, which generated a significant amount of discussion during the Legislative hearings, was the question of how people will behave during a radiological emergency. It was an issue which placed the witnesses proffered by LILCO in clear disagreement with the County's experts.

LILCO asserted in both its written submission to the Legislature and during the actual testimony of its experts that human behavior does not vary between different types of disasters. Based on research of disasters such as floods, hurricanes and chemical spills, LILCO's experts testified that people experiencing a radiological emergency will tend to react calmly and follow authoritative orders. LILCO prepared statement at 63-65, 84; Tr. 345-366. Therefore, they conclude, a radiological emergency response plan need not take into account any potential overreaction or disobedience to instructions. Tr. 346-347.

The County's experts, however, take a different approach, supported by their studies of TMI, the disaster related literature, and the actual studies which have been performed on Long Island. The testimony of Dr. Susan Saegert, Professor of Environmental Psychology at City University of New York, was typical of the County experts' unanimous position on the issue:

> Well, I think that the message that I think would be clearest in psychological literature is that there are aspects of nuclear hazards which make them different in people's perceptions than other kinds of hazards and these include the more involuntary, more dreaded, . . . more feared, perceived as being out of control, perceived as being unknown both by lay people and by scientists, and perceived as being hard to locate both [onsite and offsite].
>
> These characteristics make it more likely that people will overreact to a threat.

Tr. 1121-1122. As Dr. Johnson of UCLA and Dr. Zeigler of Old Dominion University testified, radiation is undetectable by human senses. As such, it causes a greater fear in people, born out of uncertainty, causing them to overestimate the danger of a nuclear accident and thus to overreact. Tr. 1035, 1117, Attachment B at 1; see also, testimony of Dr. Erikson, Tr. 1047.

The conclusions drawn by Drs. Johnson and Zeigler are not based on speculation, but on their detailed studies of human behavior both at Three Mile Island on Long Island. At Three Mile Island, the Governor of Pennsylvania issued an advisory that pregnant women and pre-school aged children within 5 miles of the plant should evacuate. An estimated 2,500 persons within the five mile area around TMI fit that category; however, the studies of Drs. Johnson and Zeigler, as well as two other studies (Tr. 1100), revealed that over 144,000 persons living as far as 15 miles from the plant in fact evacuated. Tr. 1037, 1099; see also testimony of Dr. Stanislav Kasl, Tr. 1399. This tendency for persons in a radiological emergency to evacuate in great numbers, though not advised to do so, has been labeled the "evacuation shadow phenomenon."

Mindful of this occurrence at TMI, the Steering Committee commissioned a study to investigate whether such behavior might occur on Long Island in the event of an accident at Shoreham. The study, conducted primarily by Drs. Johnson, Erikson, Zeigler, and Cole, consisted of a random sample telephone survey of more than 2,500 Long Island residents. Dr. Cole's research firm, Social Data Analysts, administered the survey, the results of which are contained in Documents 4 and 5 of Volume III of the County's RERP. The focus of the study was upon three nuclear accident scenarios posed to each interviewee. In Scenario One, each interviewee was asked what he or she would do if there was an official advisory that persons within a 5 mile radius of the plant should stay indoors. No one was advised to evacuate. The responses of the interviewees indicated that 215,000 families, or about one quarter of the population of Long Island, would attempt to evacuate. Tr. 1040.

Scenario Two was patterned after the TMI accident where a partial evacuation out to 5 miles from the plant was advised. While such an advisory would cover only 2,700 families in Suffolk County, responses indicated that 289,000 families would attempt to evacuate. Tr. 1041.

In Scenario Three, an evacuation was ordered out to 10 miles from Shoreham. Thirty-one thousand families live within that area, but the survey discovered that 430,000 families -- about half the population of Long Island -- intended to leave their homes in such a case. Tr. 1041.

A tendency to evacuate voluntarily in such large numbers has obvious and severe implications for emergency planning which, contrary to the conclusory approach of LILCO's experts and its unauthorized RERP, cannot be ignored. Dr. Johnson summarized those implications and their consideration by the County's experts in contributing to the definition of defining the County's 20 mile EPZ as follows:

> I think generally any definition of a ten-mile EPZ ignores what we have defined as the evacuation shadow phenomenon, that is, the tendency for people beyond a designated danger zone to overreact and spontaneously evacuate.
>
> Now the significance of this evacuation shadow phenomenon is that you're going to have all of those people on the evacuation routes as well as the people from within the designated danger zone, and the traffic beyond the ten-mile EPZ . . . could slow or hinder the evacuation from the designated danger zone.
>
> Our purpose in redefining the EPZ for twenty miles is to accommodate the evacuation shadow phenomenon because we acknowledge or realize that that traffic is going to have some effect on evacuating the designated zone, however it's defined.

Tr. 1071-1072.

In short, if people beyond 10 miles from the plant are going to evacuate in great numbers, there must be an EPZ proportionately much larger than that in order to provide police traffic control and other pre-planned measures designed to expedite the anticipated traffic flow as much as possible. The 20 mile EPZ thus is based not only on the anticipated doses of radiation that can be expected in a radiological emergency, but also recognizes the need to plan for the evacuation shadow phenomenon.

2. Mississagua

In order to buttress its argument that people will behave calmly and rationally during a radiological emergency, LILCO offered the example of a train accident in Mississagua, Ontario, which caused chlorine gas to escape into the atmosphere. As a result, there was a successful evacuation of over 200,000 people from a 116 square kilometer area over the course of 24 hours. LILCO prepared statement at 65-70. Relying on the experience at Mississagua, LILCO urges that an evacuation in the event of a radiological emergency would be no more difficult. Id.

The County's experts concluded, that Mississagua is not an appropriate example from which to draw lessons relevant to a radiological emergency. Dr. Erikson explained that position in his testimony at Tr. 1048-1050:

Now, there are those who cite the evacuation of a place called Mississagua in Ontario, Canada, as an indication that a large scale evacuation can be carried out in a successful manner, but I think it's very important that one understands what happened there, because I am not at all sure it makes sense to take much comfort from it.

In the first place, the emergency of Mississagua was created by chlorine gas, which has an exceptionally sharp smell, rather than radiation which has no smell at all. And being aware of that difference, both the Mayor of Mississagua and the Emergency Planning Coordinator of the Province of Ontario, have publicly and specifically warned that it would be very foolish to generalize from that experience to one in which radiation was a potential problem.

Second, the emergency at Mississagua began with an explosion in the middle of a Saturday night, and the evacuation began at 4 o'clock on a Sunday morning when all of the schools, and I presume most of the stores, and most of the places of business were closed. So that virtually everybody in Mississagua was home; virtually every family in Mississagua had been -- already had been assembled, and the Mayor of Mississagua, again, would share with most people who had thought seriously about this, it's foolish to assume that the outcome of an emergency that operated on such favorable conditions can be generalized to some place like Suffolk County, where conditions are worse.

Third, the Mississagua evacuation was phased over a relatively relaxed period of 20 hours or even more, and that's a luxury that one dare not assume that one would have in the event of a potential -- future accident involving radiation. The people of Mississagua, during the whole of that evacuation, had no reason to suppose that they were in grave danger at the moment. (Emphasis added).

Thus, he concluded, Suffolk County would be better served by heeding the studies done in Suffolk County pertaining to a radiological emergency, rather than the experience of Mississagua, the relevance of which is dubious to radiological emergency response planning on Long Island. Tr. 1050; see also Tr. 1064-1066.

3. Role Conflict

As discussed earlier, Suffolk County also was concerned with the issue of whether emergency personnel with families would be available for duty during a radiological emergency in which such personnel would have two conflicting duties, one to their job and the other to their families. Tr. 1067. The problem is known in sociological terms as "role conflict." Each duty is equally noble, but many workers would be expected to resolve the conflict in favor of their families, particularly in a radiological emergency where the danger is not easily detectable and therefore more feared. Tr. 1048.

Drs. Erikson and Cole performed two surveys to determine to what extent, if any, the problem of role conflict might hamper the County's response to a radiological emergency. The first survey studied the attitudes of school bus drivers in Suffolk County, who would have a major role in evacuating school children and others from the EPZ. The second survey studied role conflict among volunteer firemen serving fire districts close to the Shoreham plant. During a radiological emergency, volunteer firemen would also be expected to perform various evacuation duties.

The details of the role conflict studies are contained in Volume III, Document 6 ("Responses of Emergency Personnel To A Possible Accident At The Shoreham Plant"). They reveal that 68 percent of the firemen surveyed indicated they would first care for the safety of their families and therefore would not be available for immediate emergency duty. About 36 percent indicated they would not be available at all. Tr., Jan. 24, 1983, Attachment C at 6. With respect to school bus drivers, 69 percent indicated that they would not report to duty until they were certain that their families were safe. Tr., Jan. 24, 1983, Attachment C at 7.

Highlighting the implications of these results for radiological emergency planning, Dr. Erikson concluded:

> These are striking and important findings. They indicate in the sharpest way that it is reckless to assume that emergency personnel can be counted on to report to duty in a Shoreham emergency without assurances that their families are safe. Nor should we be surprised, for, if social and behaviorial scientists know anything, it is that people instinctively turn first to the needs of their own offspring.

Tr., Jan. 24, 1983, Attachment C at 7.

LILCO, preferring to refer to the problem as "role strain," testified that in all other emergencies, personnel performed adequately and that therefore they could be expected to do so in a radiological emergency. LILCO prepared statement at 70-79; Tr. 179-180. That position, however, ignores the findings of the County's experts that a radiological emergency is not like other emergencies due to its undetectable nature. See, e.g., Tr. 1048. Moreover, the presence of a potential role conflict problem among Suffolk County emergency personnel was confirmed by the testimony of the Commissioner of the Suffolk County Police Department, and the Commissioners of Health, Social Services and Public Works, all of whom expressed misgivings about the availability of their personnel during a radiological emergency. Tr. 1210, 1285, 1290, 1292; Suffolk County Police Department prepared statement [hereinafter SCPD statement] at 11-12. As Commissioner Dilworth of the Suffolk County Police Department testified:

> Look, those who are at home or off duty, and the great proportion of our personnel within the EPZ, we would certainly see some role conflict. It is our opinion that their conflict would be a moral responsibility to their public duties and their family duties, and they would first provide for their families.

Tr. 1220.

Quite obviously, role conflict is a problem which exists and must be resolved in order to have an effective emergency response. Until the problem is resolved, any attempt to implement a plan without an assurance of adequate emergency personnel would threaten the safety of Suffolk County's residents.

4. Other Social and Psychological Issues

In addition to the problems of the evacuation shadow phenomenon and role conflict noted above, Professor Saegert of the City University of New York noted other important problems in planning for a radiological emergency. For instance, stressful situations might arise during an evacuation in Suffolk County which could lead to aberrant, violent or irrational behavior that could hamper an effective response:

> The other problem that I think should be emphasized is the difficulty that this particular site presents for coordinating an evacuation to the person who's faced with trying to decide what to do. The [lack] of alternative routes, possible perceived time pressure, the possibility of choosing a route and finding it to be unsuccessful, choosing another route and finding it to be unsuccessful, are the kinds of things that can change the intent to evacuate in an orderly fashion into an irrational kind of behavior.

Tr. 1122-1123. Concerns about disorderly behavior were also raised by the Suffolk County Police Department. Tr. 1212; 1228-1229; 1248; see also SCPD statement at 32.

In addition, while it has been suggested that public education about radiation and radiological emergencies might reduce disobedience to orders from public officials or police, studies indicate that public education may, in fact, heighten confusion and fear about radiological accidents and cause an increase in undesirable behavior. Tr. 1091. Accordingly, it is not clear that the difficult issues surrounding preparedness for Shoreham -- evacuation shadow, role conflict, and the others -- are amenable to resolution by education even with a total commitment of County resources.

Finally, Professor Saegert urged that the County should be aware of and concerned with the problems of long term stress which is still being exhibited by inhabitants around Three Mile Island. Tr. 1069-1070.

5. The Value of Surveys

As discussed above, some of the conclusions drawn by the County's experts about human behavior derive from scientific studies of Suffolk County's residents and emergency personnel. LILCO has attacked the County's studies as irrelevant, taking the position that surveys cannot adequately predict future human behavior. LILCO prepared statement at 80-81; Tr. 179. In essence, LILCO urges that the County should focus upon human behavior in other, non-nuclear, disasters and ignore the information offered by its own residents.

However, as Dr. Cole testified, surveys which are properly conducted[10] can be highly accurate indicators of future human

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[10] As Dr. Cole testified, the results of the surveys he conducted for Suffolk County are highly reliable:

> Of all of the surveys I have done; all 150 or so that I have done, not one was done to more rigorous or higher professional standards than the surveys which I conducted for Suffolk County.

Tr. 1054.

(Footnote cont'd next page)

behavior and, in fact, are used constantly by corporations and governments in decisionmaking. Tr. 1058-1060. In fact, Dr. Cole has conducted two telephone surveys for LILCO. Tr. 1114-1115.

Speaking on the issue of the accuracy of surveys, Dr. Erikson reminded the Legislators that the surveys conducted on Long Island represent "the only relevant information available to us ... and to say those findings are unreliable is to say that the people who live in this community cannot be trusted to know their own minds." Tr. 1052. Further evidence of the accuracy of the surveys is shown by the fact that the results of the social survey conducted by the County's experts closely matched the actual behavior recorded at TMI. Tr. 1116. In light of this evidence, the County is satisfied that the surveys it commissioned were useful tools in the development of its RERP.

D. Evacuation Routes And Time Estimates

Perhaps the most perplexing issue in developing the

(Footnote cont'd from previous page)

The unusually large sample (2595 persons) interviewed for the social survey gave it a sampling error of only three percentage points. Tr. 1055. The emergency personnel survey interviewed almost all of two specific sets of emergency workers and thus did not have a sampling error. Tr. 1059-1058. In addition, the surveys were extensively pre-tested and administered by trained interviewers. Tr. 1056-1057.

County's RERP was the problem of how to move large numbers of people out of the EPZ and beyond on a limited number of roads running through a narrow island. In his testimony, Police Commissioner Dilworth posed the problem starkly:

> Our job will be made difficult by the elongated, narrow shape of the island and its large population which is spread amongst a limited network of roadways. The location of the Shoreham plant, immediately adjacent to the Long Island Sound, prevents 360° dispersal of evacuating traffic. In short, the Police Department and emergency planners are confronted with having to move a large population through a small corridor.

Tr. 1207-1208.

The County hired the firm of PRC Voorhees to analyze Suffolk County's road system and to estimate the time required to evacuate the various segments of the EPZ. The results, compiled in the County's RERP at Volume II, Document 1 (Preliminary Evacuation Time Estimates For The Shoreham EPZ)[hereinafter Time Estimates] provide a dim view of the prospects for rapid evacuation of County residents.

Suffolk County is served by only four major routes running in an east-west direction (the Long Island Expressway, Sunrise Highway, Jericho Turnpike and Northern State Parkway), and a few additional minor routes. Time Estimates at 25. Only three routes have limited access. Id. at 6.

Given this limited network and the elongated shape of Long Island, the time estimates developed by Voorhees' computerized traffic model are in most cases extremely high. They are summarized in Table 10 of the Time Estimates, which is reproduced on the following page. As the table indicates, the evacuation time estimates for evacuation of the inner and eastern sectors of the EPZ are relatively low. However, an evacuation of the inner sector plus any other sectors produces evacuation times ranging from well over 10 hours to 30 hours, depending upon the specific sector and postulated road conditions. The most distressingly high time estimates, in the range of 14-30 hours, occur in the western sectors -- the most highly populated sectors.

While the PRC Voorhees traffic model took into account the numbers of cars expected to be on the road due to the evacuation shadow phenomenon (see above), it did not consider such obstacles to an evacuation as automobiles running out of gas,11/ accidents, breakdowns and disobedience of the rules of the road. These are problems that could severely hamper an

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11/ Table 3 on page 31 of the SCPD statement depicts the amount of fuel consumed by automobiles with idling engines. Assuming that the average automobile has a half tank of gas, and assuming further that a small 4-cylinder automobile has a 10 gallon tank while a large 8-cylinder automobile has a 20-gallon gas tank, the information in Table 3 indicates that the average automobile would run out of gas in about 10 hours. Since the evacuation time estimates for so many of the sectors in the EPZ are above 10 hours, it can be assumed that many cars will run out of gas before the completion of an evacuation. Obviously, such an occurrence would impede or even immobilize the progress of traffic, as would accidents and breakdowns.

EVACUATION SCENARIO

Sectors Recommended For Evacuation	1 1985 Summer Population	2 1985 Winter Population	3 1985 Winter Population (Adverse Conditions)	4 Restricted North & South Fork Traffic 1985 Winter Population	5 100% of Sectors Recommended 0% of Others 1985 Winter Population	6 20% Population Increase Winter Non-Adverse Conditions	7 Shadow Test 100% Inner + Shadow Summer (Wintor)	8 Shadow Test 100% Inner Only 0% Others Summer (Winter)
Inner Only	4:30	3:45	5:15	3:45	4:15	4:30	5:15 (4:30)	5:00 (4:15)
Inner + Western	14:30	13:45	22:15	13:45	14:15	16:15		
Inner, Western & WSW	19:15	17:30	28:30	17:30	20:30	20:45		
Inner, Western WSW & SW	21:15	19:45	30:00	19:45	24:45	23:30		
Inner, WSW, SW & S	21:15	19:45	30:00	19:45	24:45	23:30		
Inner, SW, S & SE	17:30	10:45	17:15	9:45	12:15	12:45		
Inner, S, SE & East	15:00	10:45	17:15	9:45	12:15	12:45		
Inner, SE & East	12:30	4:30	6:45	3:45	5:00	5:00		
Inner & East	6:30	4:30	6:45	3:45	5:00	5:00		

TABLE 10. SUMMARY OF EVACUATION TIMES

evacuation and thus raise evacuation times considerably or, in the case of many cars running out of gas, even immobilize an evacuation effort.[12] While the rapid deployment of tow trucks might be useful to clear non-functioning cars from the roads, few such trucks are at the County's disposal. The Department of Public Works has only one tow truck (Tr. 1293), while the police have four. Tr. 1226. Private tow truck operators might provide some assistance in removing non-functioning cars, but they would experience the same role conflicts as other emergency personnel and thus would not be reliable. See Tr. 1293.

In short, the PRC Voorhees evacuation time estimates are actually too low. Nevertheless, they make it clear that while it may be feasible to evacuate the inner sector alone or the eastern sector, it is unworkable to attempt evacuations of the other sectors, which could take as much as 30 hours or more. Tr. 1128, 1167. Thus, the only available protective action for persons in the western sectors is to take shelter in their homes. However, as will be discussed in later portions of this report, the sheltering option poses a significant danger to the public health of Suffolk County's residents.

12/ Note also other problems raised by the police department that could have an adverse impact upon evacuation times including: (1) a potential loss of communications if police headquarters must be evacuated; (2) the possibility of civil disobedience; (3) uncertainty that police mobilization could be achieved before an evacuation starts; (4) traffic moving into the EPZ as families attempt to unite; and (5) potentially inadequate police resources. See generally SCPD statement.

E. Health Effects

An accident at Shoreham would have adverse effects upon the health, safety, and welfare of the residents of Suffolk County (and in some circumstances, beyond the County's borders), including short term deaths and illnesses, long term deaths and illnesses, and various psychological illnesses.

1. Short Term Health Effects

Short term (or "early") deaths and illnesses are those that would occur within 60 to 90 days after exposure. With respect to early injuries, detectable changes in the blood platelets will occur at 30 rems, while more acute effects such as nausea and fatigue could begin at approximately 50 rems of exposure. Finlayson and Radford at 17. Two hundred rems represents the lower level of exposure at which early fatalities may occur.

As discussed above, Dr. Finlayson, in his consequence analysis, calculated that in the event of one of the more probable types of core melt accidents, there could be as many as 577 early fatalities with a mean of about 15 early fatalities. The same accident could cause up to 1,270 early injuries, with an average of about 18 such injuries. Failure to take adequate protective actions could increase those numbers substantially. Finlayson and Radford at 35.

2. Long Term Effects

(a) Cancer

The most prevalent long range physiological effect of radiation released during at accident at Shoreham will be increased incidences of cancer. Dr. Finlayson has calculated, using the CRAC-2 code and the latest Japanese atomic bomb data provided by Dr. Radford, that there could be between about 1000 and 1,700 cancer fatalities within the EPZ and between 7,000 and 8,700 fatal cancers outside of the EPZ, depending on evacuation speed and evacuation delay time (the time between public notification and the commencement of evaluation). Finlayson and Radford at Table 8(a).

In addition, Dr. Radford urged that any consideration of radiation-induced cancers should not be restricted to those resulting in death since the occurrence of cancer, even non-fatal, imposes significant suffering and economic loss upon its victims. Dr. Finlayson's CRAC-2 calculations, again using the new Japanese atomic bomb data, show that within the EPZ, there could be between 1,810 and 3,500 incidences of cancer, both fatal and non-fatal, depending upon evacuation speed and delay time. Outside of the EPZ, between 15,700 and 17,400 cancer incidences could occur. Finlayson and Radford at Table 8(b).

(b) Genetic Effects

Dr. Seymour Abrahamson, Professor of Zoology and Genetics, University of Wisconsin, addressed the Legislature on the effects that radiation exposure may have upon future generations in the form of genetic diseases. The evidence at this time indicates that if one million parents are each exposed to one rem of radiation, there will be 100 additional occurrences of genetic disease among their offspring and 70 additional genetic diseases in the second generation. Tr. 1411. The genetic effects of radiation increase linearly according to dose; i.e., a 10 rem exposure to one million parents would result in 1000 additional genetic diseases in the first generation of offspring and 700 additional genetic diseases in the second generation. Tr., Jan, 27, 1983; Attachment D at 2.

An accident at Shoreham could subject a large segment of the population both inside and outside the EPZ to radiation. Therefore, on the basis of Dr. Abrahamson's testimony, it can be expected that some genetic diseases would occur in the offspring of Suffolk County residents as a result of such exposure during a radiological emergency.

3. Psychological Effects

Stanislav Kasl, Ph.D., a professor at the Yale University School of Medicine, addressed the Legislature on the psychological impacts on the population in the wake of a radiological emergency. Dr. Kasl noted that about 10 percent of the population surrounding TMI suffered severe psychological distress reflecting "anxiety, depression, anger, irritation, demoralization, hopelessness, helplessness and psychophysiological symptons." Tr. 1396-1397. Some groups, such as women and parents with young children, were more vulnerable to symptoms of psychological distress than others. Tr. 1398.

Thus, as Dr. Saegert also emphasized, the psychological effects following a radiological emergency reflect further costs that must be of concern to Suffolk County decision-makers. Tr. 1123.

F. The Health Effects of Sheltering

In the above section describing the evacuation time estimates, it became evident that evacuation from the western sectors of the EPZ during a radiological emergency would be impractical because of the extreme amounts of time -- 14 to 30 hours -- that would be required to evacuate those sectors. Given the unavailability of evacuation as a protective action, the only other practical option is sheltering -- i.e., staying indoors until the radioactive plume passes, after which some limited evacuation of persons in contaminated areas might be feasible. At issue, however, is whether sheltering would provide adequate protection to Suffolk County residents during a radiological emergency. Dr. Radford and Dr. Karl Morgan, former Director of Health Physics at Oak Ridge National Laboratory and professor of health physics at Georgia Tech, addressed this issue before the Legislature.

As Dr. Morgan noted, Suffolk County has a prevalence of frame houses which do not provide as much protection from radiation as do brick or stone buildings. Thus, the typical house in Suffolk County would reduce a dose of radiation only by approximately one half. Tr. 1391. Dr. Radford estimated that if, during the more probable core melt accidents, the western sectors did not evacuate, Suffolk County citizens residing in those sectors would experience 4,500 occurrences of cancer above normal levels. Tr. 1419-1421. About half of those cancers would be fatal. See Finlayson and Radford at 20. Therefore, sheltering under those circumstances would result in about 2250 cancer deaths.

In a very severe accident, the consequences of sheltering as the only practical protective action would be much worse. Figure 11 of the Finlayson and Radford report shows that in such an accident, the outer sectors of the EPZ, including the western sectors, could receive significant doses of radiation. At the mid-point of one of the outer sectors (about 15 miles from the plant), there would be a 20 percent chance of receiving a 200 rem dose. Finlayson and Radford, Figure 11. While sheltering would reduce exposure to 100 rems, that is still a very high dose which would be likely to cause acute illness. See Finlayson and Radford at 17. In addition, at 15 miles from the Shoreham plant, Figure 11 shows a 70 percent chance of receiving 30 rems and a 90 percent chance of a 10 rem dose. Again, sheltering would reduce those doses by half, but they would still lead to significant increases in the numbers of cancers occurring in the population. See Tr. 1419-1421.

V. CONCLUSION

The data compiled during the County's extensive emergency planning effort and at the Legislature's hearings held in January document that no RERP can be prepared or implemented that can protect the health and safety of Suffolk County's residents. Accordingly, the County's RERP, LILCO's RERP and any other purported RERPs for Suffolk County will not be adopted or implemented by Suffolk County. In doing so, the County is properly exercising its duty, conferred by law, to protect the public health, safety, and welfare.

We believe strongly that our decision is correct for the well-being of the County's citizens. In short, we did what we were elected to do and we are confident that we will prevail in this endeavor.

EXHIBIT 1

Intro. Res. No. 1196-83
Introduced by Legislators Wehrenberg, Caracappa, D'Andre, Geise, Allgrove, Bachety, Prospect, Foley, Nolan, Blass, Rizzo, LaBua, Devine, Hariton, Beck

RESOLUTION NO. 111 - 1983, CONSTITUTING THE FINDINGS AND DETERMINATIONS OF SUFFOLK COUNTY ON WHETHER A LEVEL OF EMERGENCY PREPAREDNESS TO RESPOND TO A RADIOLOGICAL ACCIDENT AT THE SHOREHAM NUCLEAR POWER STATION CAN PROTECT THE HEALTH, WELFARE AND SAFETY OF THE RESIDENTS OF SUFFOLK COUNTY

WHEREAS, Suffolk County has a duty under the Constitution of the State of New York, the New York State Municipal Home Rule Law, and the Suffolk County Charter to protect the health, safety, and welfare of the residents of Suffolk County; and

WHEREAS, the Long Island Lighting Company ("LILCO") is constructing and desires to operate the Shoreham Nuclear Power Station ("Shoreham"), located on the north shore of Long Island near the town of Wading River, a location which is within the boundaries of Suffolk County; and

WHEREAS, a serious nuclear accident at Shoreham could result in the release of significant quantities of radioactive fission products; and

WHEREAS, the release of such radiation would pose a severe hazard to the health, safety, and welfare of Suffolk County residents; and

WHEREAS, in recognition of the effects of such potential hazard posed by Shoreham on the duty of Suffolk County to protect the health, safety, and welfare of its citizens, this Legislature on March 23, 1982, adopted Resolution No. 262-1982, which directed that Suffolk County prepare a "County Radiological Emergency Response Plan to serve the interest of the safety, health, and welfare of the citizens of Suffolk County .."; and

WHEREAS, in Resolution 262-1982, the Legislature determined that the plan developed by the County "shall not be operable and shall not be deemed adequate and capable of being implemented until such time as it is approved by the Suffolk County Legislature"; and

WHEREAS, in adopting Resolution 262-1982, the Legislature found that earlier planning efforts by LILCO and County planners (the "original planning data") were inadequate because they failed to address the particular problems posed by conditions on Long Island and further failed to account for human behavior during a radiological emergency and the lessons of the accident at Three Mile Island; and

WHEREAS, on March 29, 1982, Peter F. Cohalan, Suffolk County Executive, acting to implement Resolution 262-1982, by Executive Order established the Suffolk County Radiological Emergency Response Plan Steering Committee ("Steering Committee") and directed it to prepare a County plan for submittal to the County Executive and County Legislature; and

WHEREAS, the Steering Committee assembled a group of highly qualified and nationally recognized experts from diverse disciplines to prepare such County plan; and

WHEREAS, such highly qualified experts worked in a diligent and conscientious effort at a cost in excess of $500,000 to prepare the best possible plan for Suffolk County, and particularly to ensure that such plan took into account all particular physical and behavioral conditions on Long Island that affect the adequacy of the emergency response plan; and

WHEREAS, the analyses, studies, and surveys of such experts included:

(a) Detailed analyses of the possible releases of radiation from Shoreham;

(b) Detailed analyses of the radiological health consequences of such radiation release on the population of Suffolk County, giventhe meterological, demographic, topographical, and other specific local conditions on Long Island;

(c) A detailed social survey of Long Island residents to determine and assess their intended behavior in the event of a serious accident at Shoreham;

(d) A detailed survey of school bus drivers, volunteer firemen, and certain other emergency response personnel to determine whether emergency personnel intend to report promptly for emergency duties, or instead to unite with their own families, in the event of a serious accident at Shoreham;

(e) Detailed estimates of the number of persons who would be ordered to evacuate in the event of a serious accident at Shoreham, as well as the number of persons who intend to evacuate voluntarily even if not ordered to do so;

(f) Detailed analyses of the road network in Long Island and the time required to evacuate persons from areas affected by radiation releases;

(g) Detailed analyses of the protective actions available to Suffolk County residents to evacuate or take shelter from such radiation releases; and

(h) Analysis of the lessons learned from the accident at Three Mile Island on local government responsibilities to prepare for a radiological emergency; and

WHEREAS, on May 10, 1982, LILCO, without the approval or authorization of the Suffolk County Government, submitted to the New York State Disaster Preparedness Commission ("DPC") two volumes entitled "Suffolk County Radiological Emergency Response Plan" and containing the original planning data, as further revised and supplemented by LILCO, and requested the DPC to review and approve such LILCO submittal as the local radiological emergency response plan for Suffolk County; and

WHEREAS, in Resolutions 456-1982 and 457-1982, the County further addressed the matter of preparing for a radiological emergency at Shoreham and emphasized that:

(a) The LILCO-submitted document was not and will not be the County's Radiological Emergency Response Plan; and

(b) The County's Radiological Emergency Response Planning Policy, as enunciated in Resolution 456-1982, is as follows:

Suffolk County shall not assign funds or personnel to test or implement any radiological emergency response plan for the Shoreham Nuclear Plant unless that plan has been fully developed to the best of the County's ability.

Suffolk County shall not assign funds or personnel to test or implement any radiological emergency response plan for the Shoreham Nuclear Plant unless that plan has been subject of at least two public hearings, one to be held in Riverhead, and one to be held in Hauppauge.

Suffolk County shall not assign funds or personnel to test or implement any radiclogical emergency response plan for the Shoreham Nuclear Plant unless that plan has been approved, after public hearings, by the Suffolk County Legislature and the County Executive; and

WHEREAS, on June 9, 1982, the DPC rejected the LILCO-submitted document for the reason that it was deficient; and

WHEREAS, on October 6, 1982, LILCO, again without the approval or authorization of the Suffolk County Government, submitted to the DPC an amended version of the previously submitted LILCO document which had been rejected by the DPC; and

WHEREAS, on December 2, 1982, the Draft County Radiological Emergency Response Plan authorized by Resolution 262-1982 was submitted to the County Legislature for review and public hearings as specified in Resolutions 262-1982, 456-1982, and 457-1982; and

WHEREAS, in January 1983, the Legislature held hearings on the Draft County plan, which hearings included:

(a) More than 1,590 pages of transcripts;

(b) Detailed written statements and oral testimony of County expert consultants who prepared the Draft County plan;

(c) Detailed written statements and oral testimony of LILCO officials and expert consultants retained by LILCO;

(d) Detailed written statements and oral testimony of the Suffolk County Police Department, the County Health Department, the County Social Services department, and the County Public Works Department, all of which would have indispensable roles in responding to a radiological emergency at Shoreham;

(e) Detailed written statements and oral testimony of organizations in Suffolk County concerned with radiological emergency preparedness; and

(f) Extensive presentations by hundreds of members of the general public; and

WHEREAS, members of the Legislature also travelled to and held public hearings in the vicinity of the Three Mile Island Nuclear Power Plant to gain information on the lessons to be learned by local governments from the accident at Three Mile Island; and

WHEREAS, the Draft County plan identifies evacuation and protective sheltering as the two primary protective actions which would need to be implemented in the event of a serious accident at Shoreham; and

WHEREAS, evacuation of Suffolk County residents in the event of a radiological emergency could take as much time as 14-30 hours because of various factors, including: the limited number of appropriate evacuation routes in Suffolk County; difficulties in mobilizing police and other emergency personnel; difficulties ensuing from spontaneous evacuation of large numbers of County residents, thus creating severe traffic congestion; and unavilability of alternate evacuation routes for persons residing east of Shoreham and thus the necessity for such persons during an evacuation to pass by the plant and possibly through the radioactive plume; and

WHEREAS, evacuation times in excess of 10 hours -- and certainly evacuation times in the range of 14-30 hours -- will result in virtual immobilisation of evacuation and high exposure of evacuees to radiation such that evacuees' health, safety, and welfare would not be protected; and

WHEREAS, protective sheltering is designed to protect persons from excessive radiation exposure by such persons staying indoors until radiation with the greatest danger to health has passed; and

WHEREAS, if protective sheltering were ordered for Suffolk County residents, unacceptable radiation exposure would still be experienced by substantial portions of the Suffolk County population, thus making it impossible to provide for the health, welfare, and safety of these residents; and

WHEREAS, the document submitted by LILCO to the DPC without County approval or authorization is deficient because it does not deal with the actual local conditions, physical and behavioral, on Long Island that would be encountered during a serious nuclear accident at Shoreham; and

WHEREAS, the document submitted by LILCO to the DPC without County approval or authorization does not ensure that effective protective action by persons subject to radiation exposure, in the form of evacuation or sheltering, would be taken in event of a serious nuclear accident at Shoreham, and thus such document, even if implemented, would not protect the health, safety, and welfare of Suffolk County residents; and

WHEREAS, the extensive data which the Legislature has considered make clear that the site-specific circumstances and actual local conditions existing on Long Island, particularly its elongated east/west configuration which requires all evacuation routes from locations east of the plant to pass within a zone of predicted high radiation, the ineffectiveness of protective sheltering, the severe traffic congestion likely to be experienced if a partial or complete evacuation were ordered, and the difficulties in ensuring that emergency personnel will promptly report for emergency duties, preclude any emergency response plan, if implemented, from providing adequate preparedness to protect the health, welfare, and safety of Suffolk County residents; now, therefore, be it

RESOLVED, that the draft County plan submitted to the County Legislature on December 2, 1982, if implemented, would not protect the health, welfare, and safety of Suffolk County residents and thus is not approved and will not be implemented; and be it further

RESOLVED, that the document submitted by LILCO to the DPC without the County approval or authorization, if implemented, would not protect the health, welfare, and safety of Suffolk residents and thus will not be approved and will not be implemented; and be it further

RESOLVED, that since no local radiological emergency response plan for a serious nuclear accident at Shoreham will protect the health, welfare, and safety of Suffolk County residents, and since the preparation and implementation of any such plan would be misleading to the public by indicating to County residents that their health, welfare, and safety are being protected when, in fact, such is not the case, the County's radiological emergency planning process is hereby terminated, and no local radiological emergency plan for response to an accident at the Shoreham plant shall be adopted or implemented; and be it further

RESOLVED, that since no radiological emergency plan can protect the health, welfare, safety of Suffolk County residents and, since no radiological emergency plan shall be adopted or implemented by Suffolk County, the County Executive is hereby directed to take all actions necessary to assure that actions taken by any other governmental agency, be it State or Federal, are consistent with the decisions mandated by this Resolution.

DATED: February 17, 1983

APPROVED BY:

Peter Cohalan

County Executive of Suffolk County

Date of Approval: 2/23/83

EXHIBIT 2

Intro. Res. No. 1266-82 Laid on Table 3/9/82
Introduced by the Presiding at the request of the County Executive

RESOLUTION NO. 262- 1982, DIRECTING THE
COMPTROLLER AND COUNTY TREASURER TO REFUND
$150,000 RECEIVED FROM LILCO AND TRANSFERRING
FUNDS IN CONNECTION WITH RADIOLOGICAL RESPONSE PLAN.

WHEREAS, Resolution No. 694-1981 authorized an agreement between LILCO and the Suffolk County Department of Planning for the preparation of a County radiological emergency response plan; and

WHEREAS, under the terms of the agreement, LILCO has paid the County of Suffolk $150,000 with an additional $95,000 due upon completion of the contract; and

WHEREAS, special counsel for the County in the Shoreham operating licensing proceedings has advised the County that it is in the best interest of the County to avoid any appearance of a conflict of interest by returning the $150,000 received from LILCO for the radiological response plan; and

WHEREAS, it is the intention of the County to complete the radiological response plan at its own expense; now, therefore, be it

RESOLVED, that the County Comptroller and County Treasurer are directed to return $150,000 to LILCO; and be it further;

RESOLVED, that the County Comptroller and County Treasurer are directed to cancel the unexpended balance in the following encumbrances;

01-8026-992
01-8026-993
01-8026-994

and be it further

RESOLVED, that the County Comptroller and County Treasurer be, and they hereby are authorized to transfer the following funds and authorization:

FROM	
Employee Benefits Health Insurance 01-9060-836	$375,000
TO	
Planning Radiological Response Plan (Office Supplies) 01-8026-301	10,000
Planning Radiological Response Plan (Printing) 01-8026-304	19,000
Planning Radiological Response Plan (Misc.) 01-8026-350	40,000

Planning Radiological Response Plan (Adv.) 01-8026-377	1,000
Planning Radiological Response Plan (Mileage) 01-8026-433	5,000
Planning Radiological Response Plan (Fees for services for non-Employees 01-8026-456	300,000

and be it further

RESOLVED, that the County Planning Department shall prepare a County Radiological Emergency Response Plan to serve the interest of safety, health and welfare of the residents of Suffolk County; and be it further

RESOLVED, that said plan shall not be operable and shall not be deemed adequate and capable of being implemented until such time as it is approved by the Suffolk County Legislature; and

RESOLVED, that only after said plan is approved by the Suffolk County Legislature, shall it be submitted to the Federal Emergency Management Agency and the Nuclear Regulatory Commission for purposes of any findings, determinations, rulings, reviews, or hearings by such Federal agencies.

DATED: March 23, 1982

APPROVED BY:

Peter Cohalan

County Executive of Suffolk County

Date of Approval: 3/25/82

SUFFOLK COUNTY
County Legislature
RIVERHEAD, N. Y.

This is to Certify That I, William H. Rogers, Clerk of the County Legislature of the County of Suffolk, have compared the foregoing copy of resolution with the original resolution now on file in this office, and which was duly adopted by the County Legislature of said County on March 23, 1982 and that the same is a true and correct transcript of said resolution and of the whole thereof.

In Witness Whereof, I have hereunto set my hand and the official seal of the County Legislature of the County of Suffolk.

William H. Rogers

Clerk of the County Legislature

EXHIBIT 3

Excerpts From The
Shoreham Licensing Proceedings
Regarding Emergency Planning

The Lloyd Harbor Study Group ("LHSG") petitioned to intervene on March 2, 1970, in the construction permit proceedings for Long Island Lighting Co.'s Shoreham plant. At that time, LHSG stated its concern that

> If an accident occurred at ... Shoreham, appropriate and effective arrangements could not be made ... to protect the public health and safety and to permit ready removal and evacuation of people ... from the project area and nearby population centers.

LHSG Petition for Intervention at 5 (Mar. 2, 1970). Over LILCO's opposition, the Licensing Board permitted LHSG to intervene. LILCO's Answer to the Petition of LHSG at 6 (Mar. 11, 1970).

On September 14, 1970, the AEC staff, in its Detailed Statement on Environmental Considerations, indicated that only "preliminary emergency plans" were required at this stage and stated that:

> The provisions in the final plans for coping with emergencies would be reviewed in detail during the operating license review....

Environmental Statement at 9 (emphasis added).

On December 1 and 2, 1970, counsel for LHSG questioned Andrew Woffard of LILCO extensively about what planning

LILCO and local officials had done. Mr. Woffard said that all discussions had been oral and informal, but he stated:

> [I]t is my understanding that before we can receive an operating license it will be necessary for us to have an acceptable plan and definition of responsibilties and authority of the three major parties. The local government, the AEC and ourselves and this will be done.

Tr. 2507 (Dec. 2, 1970).

The Chairman of the Licensing Board indicated that it would not require LILCO to submit a final plan:

> We have no authority to pass upon the sufficiency of these plans at this time or to deny the application on the grounds that they do not have a full-blown plan for a facility that will not be in operation for several years.

Tr. 2509 (statement of Chairman Campbell).

When LHSG attempted to ask further questions regarding emergency planning, counsel for LILCO objected:

> That is really irrelevant .... The Board has ruled that the formulation of the precise plans for emergency procedures is not an appropriate subject for these hearings, that that comes _at the operating license stage_ under Commission regulations ....

Tr. 2522 (Statement of George C. Freeman, Jr.) (emphasis added).

LHSG questioned Mr. Woffard about whether LILCO would warn persons on a nearby beach in the event of an accident. He replied:

> I am sure in the event such happened, we would send a messenger down and we would suggest they leave. _They could swim away if they wished_.

Tr. 2524 (emphasis added).

In its Proposed Findings of Fact, LILCO argued that it need not develop an emergency plan at the construction stage:

> Although AEC regulations require an applicant to treat emergency planning in a preliminary fashion in its Preliminary Safety Analysis Report, a full plan need not be developed until the operating license stage .... A fully developed emergency plan will be available for review at the operating license stage....

LILCO's Proposed Findings of Fact and Conclusions of Law at 27 (June 8, 1971).

In response to LHSG's Proposed Findings of Fact and Conclusions of Law, LILCO submitted a Reply (Aug. 27, 1971), which stated in part:

> Findings 13-14 [of LHSG's Proposed Findings of Fact] deal with emergency planning, raising questions more appropriate to the operating license state [sic]. Emergency planning has been adequately discussed for the present progress of the project .... LILCO has made clear its awareness of the emergency plan requirements and will provide a plan acceptable to the regulatory authorities at the appropriate time (Tr. at 2507).

LILCO's Reply at 1-64, 1-65 (emphasis added).

The Atomic Safety and Licensing Board accepted LILCO's conclusions:

> The Board finds the Applicant's emergency plan adequate for the construction permit stage. In accordance with Commission regulations the Applicant will be required to include in a Final Safety Analysis Report an emergency plan sufficient in detail to demonstrate reasonable assurance that appropriate measures can and will be taken to protect public health and safety and minimize property damage.

Long Island Lighting Co. (Shoreham), LBP-73-13, 6 A.E.C. 271, 285 (Apr. 12, 1973) (emphasis added).

LHSG protested the Licensing Board's decision on emergency planning:

> [T]he failure to require detailed plans prior to the issuance of a construction permit was error.

LHSG's Exceptions to Initial Decision at 11 (Apr. 18, 1973). As LHSG explained in its Brief on Exceptions:

> [B]y deferring consideration of emergency plans to the operating-license stage (¶77), the ASLB improperly foreclosed consideration of whether any effective emergency plan could be developed for Long Island, and the costs and consequences of possible failure to implement any such plan.

LHSG Brief on Exceptions at 31 (May 3, 1973) (emphasis added).

LILCO opposed LHSG's Exceptions regarding emergency planning and all other safety questions:

> [T]he LHSG claims that the record is inadequate or incomplete or that the Board failed to meet any "public interest" responsibilities are simply frivolous.

LILCO's Brief in Opposition to Exceptions Taken by LHSG at 138 (May 3, 1973). As for the absence of an emergency plan, LILCO reiterated its position that:

> [A] full plan need not be developed until the operating license stage.

Id. at A-25.

The Atomic Safety and Licensing Appeal Board affirmed the Licensing Board's Initial Decision:

> The final determination with respect to the content of the necessary emergency plans must depend on the development of the population growth in the next few years.... The Board correctly concluded that the outline of the proposed emergency plan submitted by the applicant is sufficient at this time.

Long Island Lighting Co. (Shoreham), ALAB-156, 6 A.E.C. 831, 851 (Oct. 26, 1973) (footnotes omitted).

During the proceedings for an operating license for Shoreham, Suffolk County filed a Petition for Leave to Intervene on March 17, 1977. In an accompanying affidavit, a County representative pointed out:

> The feasibility of instituting effective protective measures is a site-related issue which depends on whether evacuation is possible and if so, how long it would take, matters which depend upon the road network, the existence of water barriers to evacuation, weather conditions, the direction of evacuation, the size of the population to be evacuated, etc. Thus, the radiological dosage incurred by the Shoreham population in the event of an accident may pose an unacceptable risk if the evacuation procedure proves infeasible or would take longer to carry out than expected, causing the target population to remain in the radiologically contaminated area longer than anticipated. Have the applicant and staff adequately planned for such a radiological emergency?

Affidavit of Floyd Linton at 23 (Mar. 17, 1977).

LILCO opposed the County's petition to intervene. LILCO's Opposition to Untimely Petition for Intervention (Mar. 25, 1977).

The Licensing Board permitted the County to intervene, but required the County to particularize its contentions. Long Island Lighting Co. (Shoreham), Memorandum and Order (Aug. 1, 1977). Suffolk's Amended Petition to Intervene contained three contentions relating to emergency planning, including one which stated:

> Intervenors contend that the Applicant and Regulatory Staff have not prepared and assessed an adequate evacuation plan for Shoreham as required by 10 CFR, Part 50, Appendix E, Criteria IV-E and 10 CFR, Part 50.34(b)(6)(v) with regard to the timing and feasibility of evacuation
>
> including, but not limited to, consideration of road networks, water barriers, weather conditions, and population density.

Amended Petition to Intervene at 20 (Sept. 16, 1977).

LILCO opposed this petition as well. LILCO's Reply to SC's Amended Petition (Sept. 27, 1977). Although the Licensing Board disallowed all three of the County's emergency planning contentions, Long Island Lighting Co. (Shoreham), Memorandum and Order (Jan. 27, 1978), upon reconsideration it later reinstated parts of each. Id., Order (Mar. 3, 1978).

EXHIBIT 4

Intro. Res. o. 1516-82
Introduced by Legislators Blass, Rosso, Foley, Caracappa, Giese, Allgrove, Richards, Wehrenberg, Rizzo, Nolan, Hariton, Noto, Howard, Prospect, LaBua, Devine, Mrazek

RESOLUTION NO. 456 -1982, ESTABLISHING THE RADIOLOGICAL EMERGENCY RESPONSE PLANNING POLICY OF THE COUNTY OF SUFFOLK

WHEREAS, County of Suffolk has the primary responsibility for the protection of its residents in the event of a radiological emergency at the Long Island Lighting Company's Shoreham Nuclear Power Station; and

WHEREAS, Suffolk County takes this responsibility seriously and intends, through good faith and sound planning efforts, to assure that the best possible emergency plan and preparedness are developed to protect the citizens of Suffolk County; and

WHEREAS, Suffolk County's Emergency Planning Task Force, composed of nationally recognized experts drawn from a range of pertinent disciplines, is now conducting a detailed planning effort in order to attempt to develop a viable radiological emergency plan for Suffolk County; and

WHEREAS, The Long Island Lighting Company, in an unwarranted and arrogant act, has gone beyond its powers as a private corporation in an attempt to usurp the rightful powers of Suffolk County by submitting county planning resource material to the New York State Disaster Preparedness Commission for its approval as the official radiological emergency response plan for Suffolk County; and

WHEREAS, said planning resource material developed in part by county personnel, is preliminary data which in no way constitutes the Suffolk County-approved RADIOLOGICAL EMERGENCY RESPONSE PLAN and will not in the future constitute such County plan; and

WHEREAS, Suffolk County will submit its RADIOLOGICAL EMERGENCY RESPONSE PLAN to the New York State Disaster Preparedness Commission only when that plan has been fully prepared and approved by Suffolk County and is thereby integrated with the planning efforts of both LILCO and New York State; therefore, be it

RESOLVED, that Suffolk County hereby established the following Radiological Emergency Response Planning Policy:

> Suffolk County shall not assign funds or personnel to test or implement any radiological emergency response plan for the Shoreham Nuclear Plant unless that plan has been fully developed to the best of the County's ability.
>
> Suffolk County shall not assign funds of personnel to test or implement any radiological emergency response plan for the Shoreham Nuclear Plant unless that plan has been the subject of at least two public hearings, one to be held in Riverhead, and one to be held in Hauppauge.

> Suffolk County shall not assign funds or personnel to test or implement any radiological emergency response plan for the Shoreham Nuclear Plant unless that plan has been approved, after public hearings, by the Suffolk County Legislature and the County Executive

and, be it further

RESOLVED, that copies of this resolution be sent to the Governor, the Speaker of the Assembly, the Majority Leader of the Senate and the Legislature of the State of New York.

DATED: May 18, 1982

APPROVED BY:

County Executive of Suffolk County

Date of Approval: 5/19/82

SUFFOLK COUNTY
County Legislature
RIVERHEAD, N. Y.

This is to Certify That I, William H. Rogers, Clerk of the County Legislature of the County of Suffolk, have compared the foregoing copy of resolution with the original resolution now on file in this office, and which was duly adopted by the County Legislature of said County on May 18, 1982 and that the same is a true and correct transcript of said resolution and of the whole thereof.

In Witness Whereof, I have hereunto set my hand and the official seal of the County Legislature of the County of Suffolk.

William H Rogers
Clerk of the County Legislature

Intro. Res. No. 1200-83

EXHIBIT 5

Introduced by Legislators Wehrenberg and Prospect

RESOLUTION NO. 113-1983, AUTHORIZING THE COUNTY EXECUTIVE TO ENTER INTO AGREEMENTS WITH EXPERTS TO DEAL WITH THE ECONOMIC CONSEQUENCES ASSOCIATED WITH THE SHOREHAM NUCLEAR POWER STATION.

WHEREAS, by Resolution No. 111 of 1983, Suffolk County has determined that because of the particular conditions on Long Island, no radiological emergency response plan, if implemented, could protect the health, welare and safety of Suffolk County s residents if there were a serious accident at the Shoreham facility; and therefore, that the County shall not adopt or implement any such plan; and

WHEREAS, the result of such County determination means that the Shoreham facility shall not operate and must be abandoned; and

WHEREAS, the abandonment of the Shoreham facility shall to varying degrees have cost and rate consequences on the Long Island Lighting Company, the Company's shareholders, the Company's ratepayers and taxpayers; and

WHEREAS, Suffolk County recognizes the need to commence aggressive and effective initiatives before the State and Federal governments to assure just and equitable allocations of such costs and rates among those persons and entities which will bear such costs and rates; and

WHEREAS, the shareholders of the Long Lighting Company have knowingly risked their capital and relied on the decisions and actions of the Company's Directors and management and must now share justly and equitably in the cost and rate consequences of the abandonment of the Shoreham facility; and

WHEREAS, the Long Island Lighting Company must not be permitted to profit, or in any way benefit, from the Company's mismanagement and imprudence in constructing the Shoreham facility or from any costs which the Company has unreasonably incurred during such period of construction; and

WHEREAS, the public interest and well-being of the residents of Suffolk County concerning the cost and rate consequences of the abandonment of the Shoreham facility and the critical regulatory and public interest issues can be served only if persons with the necessary expertise and outstanding professional credentials are retained to advise and assist the County; and

WHEREAS, there are sufficient funds within the 1983 Adopted Budget to cover the expense of engaging said experts; now, therefore, be it

RESOLVED, that the County Executive is hereby directed to commence immediately and to pursue diligently and aggressively all initiatives and activities, before both the State and Federal governments, necessary to ensure that the cost and rate consequences of the abandonment of the Shoreham facility are borne justly and equitably among all appropriate persons and entities; and, be it further

RESOLVED, that a specific goal of such initiatives and activities of the County Executive shall be to ensure that the Long Island Lighting Company does not profit or in any way benefit from its mismanagement and imprudence in constructing the Shoreham facility or from any unreasonable expenditures during the period of the construction of the Shoreham facility; and, be it further

RESOLVED, that the County Executive is hereby authorized to retain the Georgetown Group and the Energy System Research Group, and other such experts and consultants who possess the necessary expertise and outstanding professional credentials to assist and advise the County in ensuring that only just and equitable cost and rate consequences result from the abandonment of the Shoreham facility.

DATED: February 22, 1983

APPROVED BY:

Peter Cohalan

County Executive of Suffolk County

Date of Approval: 2/23/83

EXHIBIT 6

Intro. Res. No. 1517-82
Introduced by Legislators Prospect, Blass, Foley, Rosso, Caracappa, Giese, Allgr
Richards, Wehrenberg, Rizzo, Nolan, Hariton, Noto, Howard, LaBua,
Devine, Mrazek

RESOLUTION NO. 457 - 1982, AUTHORIZING THE CLERK OF THE LEGISLATURE TO SEND A HOME RULE MESSAGE FROM THE COUNTY OF SUFFOLK TO THE GOVERNOR AND THE LEGISLATURE OF THE STATE OF NEW YORK IN FORMAL PROTEST OF THE NEW YORK STATE DISASTER PREPAREDNESS COMMISSION'S USURPATION OF SUFFOLK COUNTY'S AUTHORITY TO RESPONSIBLY DEVELOP ITS RADIOLOGICAL EMERGENCY RESPONSE PLAN

WHEREAS, Suffolk County adopted resolution 262-82 which directed the Suffolk County Planning Department to prepare a county-wide Radiological Emergency Response Plan and appropriated funds for said purpose; and

WHEREAS, Suffolk County, to further its sworn duty to protect the health and safety of the people of Suffolk County, has commissioned studies to determine all planning facets that are essential in developing a viable Radiological Emergency Response Plan; and

WHEREAS, Suffolk County resolution 262-82 declared, as official county policy, that any Radiological Emergency Response proposal developed by the Suffolk County Planning Department, shall not be deemed adequate and shall not be implemented unless and until it has been approved by the County Legislature and the County Executive; and

WHEREAS, the Long Island Lighting Company has, in a direct affront to the government and the people of Suffolk County, submitted emergency planning resource material, developed, in part, by county personnel, to the New York State Disaster Preparedness Commission and has characterized that material as the complete, draft Suffolk County Radiological Emergency Response Plan; now, therefore, be it

RESOLVED, that the County of Suffolk officially again confirms and declares that the planning resource material submitted to the New York State Disaster Preparedness Commission by the Long Island Lighting Company in no way constitutes the County's Radiological Emergency Response Plan; and be it further

RESOLVED, that the County of Suffolk hereby notifies the Governor of the State of New York, the New York State Disaster Preparedness Commission, and the New York State Legislature, that is vehemently opposed to any action by New York State that would treat in any way, the documents submitted by LILCO as the County's radiological emergency response plan or any other official County document; and be it further

RESOLVED, that any action of agencies or departments of New York State to review, evaluate, approve, or in any other way consider the documents submitted by LILCO will be an insult to the people of Suffolk County and an affront to the current good faith program of Suffolk County to prepare a radiological emergency plan which protects the health and safety of the citizens of Suffolk County.

DATED: May 18, 1982

APPROVED BY:

County Executive of Suffolk County

Date of Approval: 5/19/82

SUFFOLK COUNTY
County Legislature
RIVERHEAD, N. Y.

This is to Certify That I, William H. Rogers, Clerk of the County Legislature of the County of Suffolk, have compared the foregoing copy of resolution with the original resolution now on file in this office, and which was duly adopted by the County Legislature of said County on May 18, 1982 and that the same is a true and correct transcript of said resolution and of the whole thereof.

In Witness Whereof, I have hereunto set my hand and the official seal of the County Legislature of the County of Suffolk.

William H. Rogers
Clerk of the County Legislature

5-108

EXHIBIT "12"

EXHIBIT 7

DISCUSSION OVERVIEW OF THE
RADIOLOGICAL EMERGENCY RESPONSE PLAN
# of the
County of Suffolk

Prepared for the

Suffolk County (NY) RERP Steering Committee

November 29, 1982

Prepared by

Philip B. Herr & Associates
261 Newbury Street
Boston, Massachusetts 02116

INTRODUCTION

This report summarizes the key policy choices, operating arrangements, and estimated effectiveness of the proposed Suffolk County Radiological Emergency Response Plan. That Plan, prepared pursuant to directives of the Suffolk County Executive and Legislature[1], covers areas potentially affected by a possible accident at the Shoreham Nuclear Power Station at Wading River in the Town of Brookhaven, Suffolk County, New York. The plant is owned and to be operated by the Long Island Light Company (LILCO). It contains a General Electric boiling water reactor with potential electrical output of approximately 849 megawatts. The plant is now near completion following nearly a decade of construction (construction permit issued in April, 1973).

The intent of this Plan is to provide the County population with the highest level of protection attainable in the event of a health- or safety-threatening incident at the Shoreham station. Implementing that intent has entailed going beyond the established norms of emergency response planning[2] to fully reflect the particulars of the Shoreham plant and Suffolk County's geography, social characteristics, and institutional structure. The County's objective has been preparation of the best possible plan. To that end, the County did the following.

a) Established an Emergency Response Plan Steering Committee, chaired by Frank R. Jones, Deputy County Executive, to give policy guidance to staff and consultant efforts[1].

b) Commissioned a study of the Shoreham station to review earlier LILCO-sponsored studies of the possible ways in which that specific plant's safety systems might conceivably fail, the likelihood of various failure possibilities, and the nature and timing of radiological release which could result (a review of "probabilistic risk assessment" or "PRA", directed by Dr. Robert Budnitz of Future Resources Associates, Inc.).[3]

c) Commissioned a study of how that release might be transported and deposited considering this site's meteorology, and what the health consequences of that would be in light of Suffolk County's population distribution, sheltering possibilities, and evacuation potential ("consequence analysis", prepared by Dr. Fred Finlayson of F.C. Finlayson & Associates).[4]

d) Commissioned a survey and analysis of Long Island residents to probe their likely response to a possible nuclear emergency, in particular the extent to which those told to evacuate would do so and the extent to which residents not told to evacuate would stay in place rather than spontaneously evacuating ("shadow phenomenon", study organized by Dr. Kai Erickson of Yale University, survey by Dr. Stephen Cole of Social Data Analysts, Inc., analysis by Dr. James H. Johnson, Jr. of U.C.L.A. and Dr. Donald J. Zeigler of Old Dominion University).[5]

e) Commissioned a survey of Long Island emergency personnel to probe their likely handling of conflict between family and public responsibilities in the event of a nuclear incident (study organized by Dr. Kai Erickson, survey by Dr. Stephen Cole).[6]

f) Engaged a number of other consultants, including Dr. Edward P. Radford of the University of Pittsburgh regarding health effects, Professor Susan Saegert of CUNY regarding behavior under stress, and Philip Herr of Herr Associates and MIT regarding planning matters.

g) Commissioned P.R.C. Voorhees of McLean, Virginia, to integrate all of the above studies plus more conventional analyses into an emergency response plan sensitive to the particulars of this place and time.[7]

The Plan has two aspects:

1) a plan of actions to be taken in response to any possible accident which might occur at the Shoreham facility, and

2) a plan for further developing and maintaining the County's response capability over the next several years.

This plan is designed to operate in conjunction with a number of other plans, two of which have special importance. First is a separate plan for on-site emergencies, with plan preparation being the responsibility of LILCO.[25] Second is a plan for dealing with radiation hazard through ingestion from such sources as the food chain and water supplies, with plan preparation being the responsibility of New York State. The County plan deals with off-site emergency response and with hazard resulting from direct plume consequences.

DEFINING THE PLANNING ZONE

The original planning objective was to include within the detailed planning area ("Emergency Planning Zone" or "EPZ") all locations where, in the event of a major safety failure at the Shoreham plant, there would be significant possibility of serious health effects as a result of direct exposure to the plume. An EPZ of approximately 20 miles, fitted to local features, was selected based on the following considerations. (See Exhibit A).

a) Given a core melt accident[9], there is only about a 1% likelihood that the nature of the accident and weather will result in irradiation dose levels outside the 20 mile EPZ exceeding the threshold which results in early injuries, taken here to be 30 rems to the whole body.[10]

b) In the majority of cases of possible core melt accident, irradiation dose levels outside the EPZ are unlikely to exceed about 5 rems, an upper bound of the dose range at which the EPA recommends undertaking protective actions.[12]

c) Again, given a core melt accident, a dose of 200 rems (whole body) is almost certain not to occur outside that area[10], which is understood to mean that short-term fatalities are also almost certain not to occur outside that area.

d) The zone is large enough to include a major portion of the households likely to spontaneously evacuate in the event of ordered evacuation to five or ten miles from the plant.[11]

e) The zone boundaries conform to identifiable physical features and avoid dividing major population centers.

There is some possibility of adverse health effects far outside that EPZ. For example, one accident possibility studied could result in irradiation doses of 1 rem 100 miles away[8], 1 rem being the dose threshold at which EPA suggests taking protective action. However, that possibility is so remote that it was judged by the Steering Committee and its consultants not to justify a larger and less manageable EPZ. Data prepared for the NRC by Sandia Laboratories indicates the possibility of early injuries as distant as 50 miles from the Shoreham plant. However, that finding does not reflect the actual facility at Shoreham but rather a "standard" pressurized (rather than boiling) water reactor.[26]

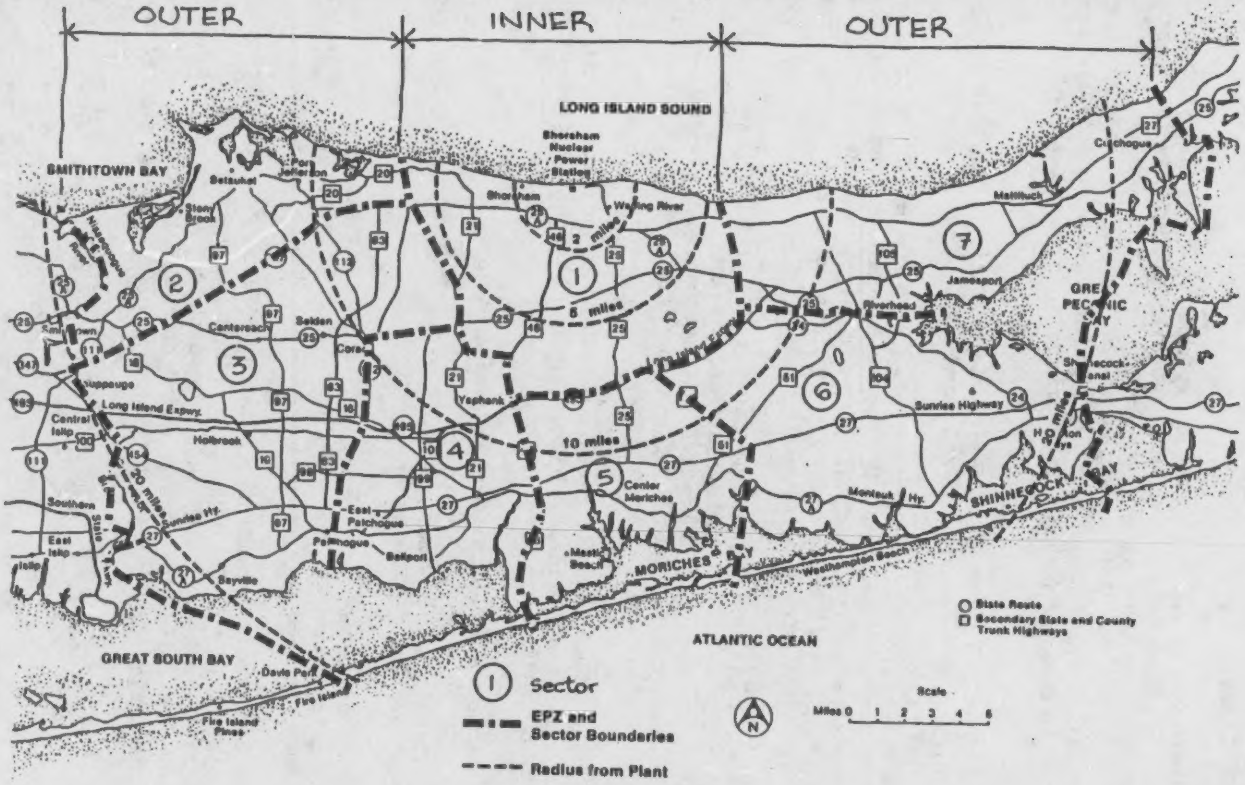


Figure1-1. Emergency Planning Zone Map

EXHIBIT A
From PRC Voorhees
Reference 7

EMERGENCY RESPONSES

Consistent with emergency planning at other nuclear plants across the nation, this plan categorizes emergencies into four levels, each calling for different sets of responses.[13]

1. Unusual event (no radioactive releases requiring off-site response): notification of Department of Emergency Preparedness, no other actions.

2. Alert (only very small off-site radioactivity): further agency notifications, field monitoring of radioactivity.

3. Site emergency (radioactive releases leading to health consequence only near site boundaries): public information, rumor control, radiation exposure control, medical preparations, transient population advised to leave, traffic control at key points to manage "shadow phenomenon" evacuation, sirens operated.

4. General emergency (core degradation or melting, radioactive releases threatening to health beyond immediate site area): all above activities, plus siren notification, recommendation to evacuate or to shelter, perimeter control (advising against entering area), security control, and reception center operation.

It is only at the general emergency level that protective actions are required for the general public. Three alternative protective actions have been considered:

1. immediate evacuation from the risk area; or

2. sheltering within homes, schools, etc., until normal activity is again healthful within the area; or

3. interim sheltering until the radioactive plume passes, followed by relocation from the area for a period of days until ground radiation levels in the evacuated area fall to acceptable levels.

In the event of an accident, radiation effects would move outward from the plant via an air-borne plume, not instantaneously, but at approximately the speed of the wind. No damaging health effects would be experienced by residents who are upwind of the plant or who, although in the plume trajectory, manage to evacuate before the plume reaches them.

If it is infeasible to evacuate before arrival of the plume, as it might be in many cases, the choice of the best protective action becomes more complex. Sheltering indoors in a typical Long Island home provides far greater protection than does being in an automobile. Therefore, for those persons who cannot escape before plume arrival, there is a tradeoff between, on the one hand, the exposure resulting from being "outside" in an automobile while evacuating, and on the other hand, the more gradual exposure resulting from remaining "sheltered" for an extended period within the impacted area. When prompt movement is feasible, analysis indicates that evacuation is almost always the better choice.[16] When prompt movement is not feasible, sheltering will sometimes be the better choice, especially if followed by relocation after the plume has passed, ground radiation levels have fallen, and travel speeds have returned to normal.

An inner ring of 5 to 7 miles from the plant has been defined, using easily identifiable boundaries (See Exhibit A). It is referred to as "inner ring" or "sector 1". Protective action recommendations would be made for the whole of that area any time they were deemed appropriate for any part of it, rather than for just the downwind area, since Long Island winds are unpredictable, and it is vital that evacuation or sheltering begin as early as possible relative to plume arrival. In the most serious cases, evacuation of that whole area would be ordered. Given the planned management system, sector 1 evacuation time is projected for the households with autos at between 3 3/4 and 5 1/4 hours, depending upon weather conditions (see Exhibit B)[14] That is quick enough to accomplish substantial irradiation dose reduction below that resulting from sheltering.[15]

The remainder of the EPZ, or "outer ring", has been divided into six sectors. In certain cases, evacuation or sheltering might be ordered for both the inner ring (sector 1) plus one or more downwind outer sectors (sectors 2 through 7), creating a keyhole-shaped evacuation "wedge". Evacuation time for the inner ring plus sector 7, the east sector, is nearly as rapid as for the inner ring alone, so for sector 7 evacuation is sometimes a clearly beneficial action. For the southeast sector (sector 6) that is also true except in the summer, when seasonal population swells time for evacuating that plus sectors 1 and 7 to more than twelve hours. For all other outer sectors, evacuation times (when combined with inner ring evacuation) are from 10 to 20 hours.[14]

Those evacuation times may prove to be optimistic. The traffic model used doesn't reduce road capacity to allow for breakdowns (running out of gas in a ten-hour traffic jam will be commonplace), for aberrant

EVACUATION SCENARIO

Sectors Recommended For Evacuation	1 1985 Summer Population	2 1985 Winter Population	3 1985 Winter Population (Adverse Conditions)	4 Restricted North & South Fork Traffic 1985 Winter Population	5 100% of Sectors Recommended 0% of Others 1985 Winter Population	6 20% Population Increase Winter Non-Adverse Conditions	7 Shadow Test 100% Inner + Shadow Summer (Winter)	8 Shadow Test 100% Inner Only 0% Others Summer (Winter)
Inner Only	4:30	3:45	5:15	3:45	4:15	4:30	5:15 (4:30)	5:00 (4:15)
Inner + Western	14:30	13:45	22:15	13:45	14:15	16:15		
Inner, Western & WSW	19:15	17:30	28:30	17:30	20:30	20:45		
Inner, Western WSW & SW	21:15	19:45	30:00	19:45	24:45	23:30		
Inner, WSW, SW & S	21:15	19:45	30:00	19:45	24:45	23:30		
Inner, SW, S & SE	17:30	10:45	17:15	9:45	12:15	12:45		
Inner, S, SE & East	15:00	10:45	17:15	9:45	12:15	12:45		
Inner, SE & East	12:30	4:30	6:45	3:45	5:00	5:00		
Inner & East	6:30	4:30	6:45	3:45	5:00	5:00		

EXHIBIT B
From PRC Voorhees reference 14.

TABLE 10. SUMMARY OF EVACUATION TIMES

behavior (drivers may not behave in an orderly fashion after several hours in what they believe to be a life-threatening queue, in need of gasoline, water, food, or toilets), or for demand in excess of free-flow capacity (some similar models reflect reduced capacity or through-put when demand greatly exceeds capacity). On the other hand, the model also assumes no increased flows attributable to people using break-down lanes, shoulders, and opposite-direction lanes. It also assumes that everyone evacuates westward, which for some persons is irrational, and which therefore is probably over-conservative.[24]

Evacuation times of 10 or more hours are a composite of many things: a certain number of people exiting the area very quickly, others moving slowly away from the plant, perhaps exactly under and keeping pace with the plume, a few possibly moving the opposite way hoping for evasion, some moving relatively rapidly on expressways, and many stopped for hours in queues. Some of those queues would be close to the plant and in the plume trajectory, others could be outside of the trajectory and distant from the plant. As a result, the irradiation dose consequences of evacuating will have large variations among potential accident scenarios, and within any scenario will have large variations among individuals.

It appears clear that in some cases, for the outer ring (sectors 2 through 7) the radiation dose exposures resulting from being caught in travel delays will be larger than those resulting from sheltering, so initiating evacuation should be discouraged: the best that can be hoped for is the irradiation dose level received through staying in place. In other cases recommending evacuation will be appropriate, because it will appear that dose savings can be achieved by that action.

Prospects for evacuation time reduction aren't good. Preventing spontaneous evacuation from the North and South Forks reduces evacuation time by no more than an hour, and raises serious issues of practicality and ethics. Inner ring (sector 1) evacuation time is reduced only 15 minutes by assuming there is no "shadow" spontaneous evacuation. The congestion points which increase evacuation times are chiefly within the EPZ, so controlling ramps to highways outside the EPZ would be of only minor help. Only major expansion of Sunrise Highway capacity seems capable of achieving major time savings under a variety of scenarios.

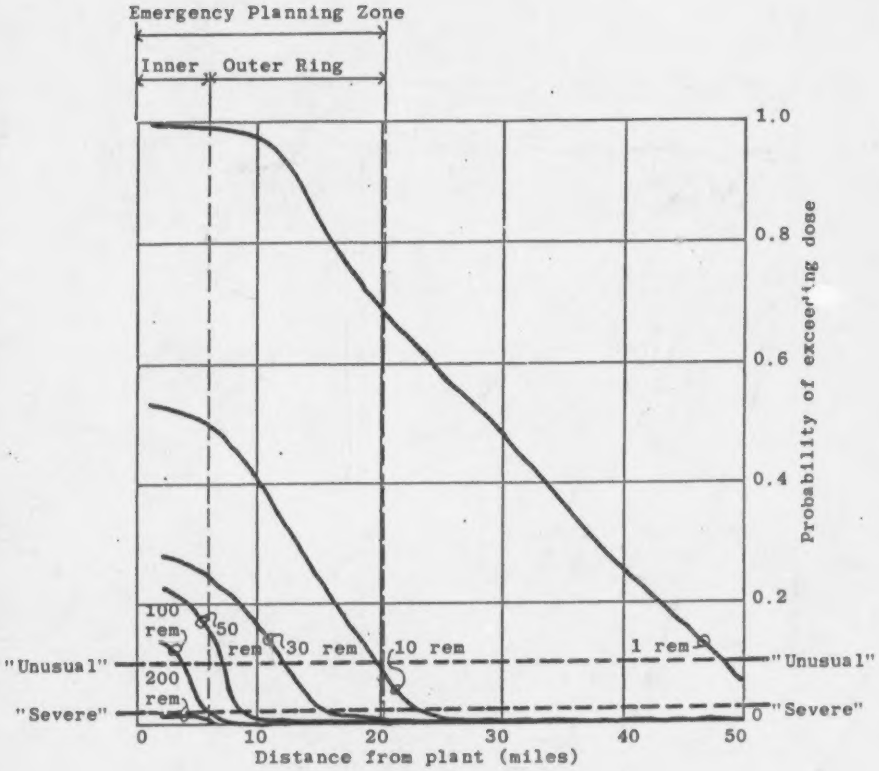
While evacuation involves broad areas in order to guard against unpredictable wind patterns, post-sheltering relocation involves only the much smaller numbers of persons in areas actually affected by the plume. Affected locations are readily identified after plume passage. Relocation to avoid dose build-up could last from a number of days to a number of weeks.

CONSEQUENCES

There is not a "standard" plant incident which would lead to emergency responses. Rather, there are a huge number of possibilities, varying in severity and other characteristics depending upon the nature of the plant failure, the weather, and the season of occurance. An accident such as a core melt involving failures unanticipated in plant design and location has an estimated likelihood of about 1 in 5,000 in any given year[3] (compared with, for example, a likelihood of 1 in 100 for severe coastal flooding). Most possibilities for those rare accidents would have only minor off-site health consequence, if any at all. This emergency response planning is designed to serve the minority of those rare cases which might entail serious off-site consequences. Table 1 illustrates three possibilities. The "unusual" scenario is for cases less likely than nine out of ten core melt accidents[17] (see Exhibit C). The "severe" scenario is for cases less likely than 99 out of 100 of those rare cases[18] (Exhibit C), and the "worst" scenario considered is for a theoretical case less likely than 99,999 out of 100,000 such cases [19] (Exhibit D). As likelihood goes down, severity goes up.

Two sets of large-scale computer models are involved in the estimating of consequence. One is the evacuation model, "EVACPLAN", created and used by PRC Voorhees to estimate evacuation times (see Exhibit E and reference 24). It models evacuation times given the population and road network of the area under a range of assumptions about year, time of year, and population compliance with orders. The second is "CRAC2", a model provided by the NRC and used by Finlayson Associates. It models irradiation doses and health consequences when given area population and meteorology, and the failure possibilities of the Shoreham plant, under a range of assumptions about speed of evacuation or lack thereof.

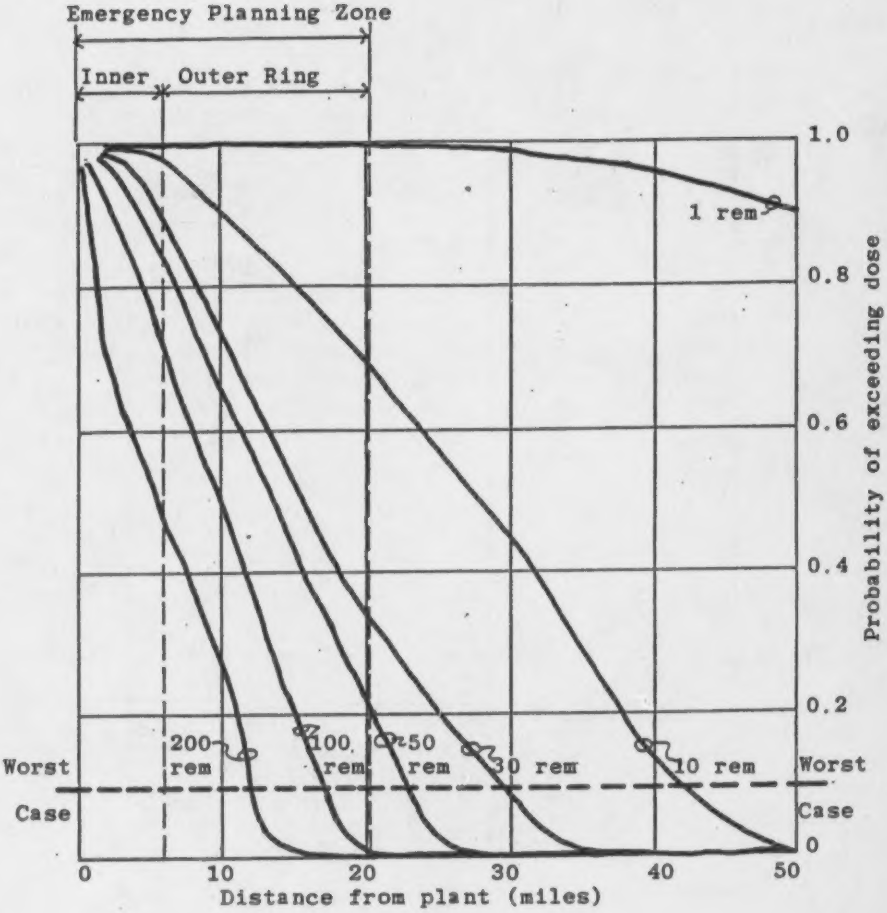
In the "unusual" case, persons located in the middle of sector 1 ("inner ring") downwind from the plant, if taking no protective action, would experience an irradiation dose level of as much as 100 rems. By sheltering, they could reduce that to 50 rems. A 100 rem exposure has substantial implications for long-term health effects: about an 8% likelihood of induced cancer attributable to that exposure, with half of those cancers eventually leading to mortalities. In the short run, there might be some illness such as respiratory impairment and vomiting, but little likelihood of illness requiring treatment, and virtually no likelihood of precipitate death. By sheltering to reduce the irradiation dose level to 50 rems, there would be barely detectable effects on even blood chemistry, no visible short-term health effects, and half the long-term cancer threat of a 100-rem exposure.[20]



Modified by Herr from Finlayson, reference 4.

EXHIBIT C

Dose-distance relationship - Integrated Accident Scenario



Modified by Herr from Finlayson, reference 4.

EXHIBIT D

Dose-distance relationship - Accident Category 5U

Table 1
SCENARIOS, ACTIONS, AND DOSES

	SCENARIO		
	Unusual[17]	Severe[18]	Worst[19]
Likelihood, given core melt	1/10	1/100	1/100,000
No-action dose (rems, whole-body)			
Inner ring	100	200	600
Outer ring	50	100	200
Beyond	10	25	50
Sheltering dose (rems, whole-body)			
Inner ring	50	100	300
Outer ring	25	50	100
Beyond	5	10	25
Minimum action to preclude early fatalities[a]			
Inner ring	-	Sheltering	Evacuation
Outer ring	-	-	Sheltering
Beyond	-	-	-
Minimum action to preclude early illness[b]			
Inner ring	Sheltering	Evacuation	Evacuation
Outer ring	-	Sheltering	Evacuation
Beyond	-	-	-
Maximum probability of fatal latent cancer given no protective action[c]			
Inner ring	0.04	0.08	0.24
Outer ring	0.02	0.04	0.08
Beyond	0.004	0.01	0.02

a: based upon 200 rems as the threshold dose for early fatalities.
b: based upon 100 rems as the threshold dose for early illness.
c: based upon 400 deaths/million person-rem. Applies to actually affected population only.

Source: P. Herr based on reference 4 and unreproduced Finlayson data.

In the "severe" case the dose levels are doubled to 200 rems unsheltered, 100 rems sheltered for the middle of sector 1, the inner ring. In such a case, sheltering would be necessary to avoid the possibility of a dose that might be lethal to some in the short run, and only evacuation could assure avoidance of short-term illnesses. Even with sheltering, induced cancer would be expected for 8% of the inner ring population actually exposed to the plume, and resultant mortality for half that number.

In the "worst" case dose levels for the inner ring (sector 1) are increased to 600 rems unsheltered, and to 300 rems even given sheltering. Within the inner ring only evacuation could assure avoidance of doses lethal to some in the short run and to as many as one quarter of those affected in the long run.

In the outer ring (sectors 2 through 7, roughly between 6 miles and 20 miles from the plant) dose levels are approximately half those of the inner ring. Sheltering is the appropriate action to avoid injury in the "severe" case. In the "worst" case, evacuation is necessary to avoid the possibility of early injury, but is subject to the caveat earlier raised: if wind direction or season or weather make evacuation slow and subject to queues within high-hazard areas, sheltering and accepting the risk of injury may be wiser than attempting to evacuate and risking an even more serious exposure while locked in a traffic back-up. Only for sector 7 (the eastern sector of the outer ring) is there assurance that evacuation results in lower dose levels than sheltering.

Beyond the EPZ, even in the "worst case", dose levels would not rise above about 50 rems, a level with potential long-term health consequence but with no likelihood of visible short-term consequence. In that extraordinary worst case, sheltering advisories would be appropriate even beyond the EPZ in order to reduce latent cancer impacts (which would be experienced by as much as 2% of the affected population). The several hours or more that the plume would likely require to reach the EPZ boundaries would provide time for making such advisories.

A county-sponsored attitude survey of Long Island residents indicates that as many as 20% of those ordered to evacuate may not do so, and that in some areas _not_ ordered to evacuate half or more of the residents may evacuate anyhow (see Exhibit E).[5] Those expectations profoundly affect emergency planning. The County has a responsibility to those persons who plan not to evacuate, since in cases such as the "severe" and "worst" scenarios that could lead to fatalities.

Spontaneous evacuation means a need for traffic control at times and in locations when evacuation isn't ordered: a ten-mile evacuation order will spark large-scale movement even outside the EPZ, potentially resulting in congestion and confusion. Such an order would direct 31,000 persons to evacuate.[29] Survey results indicate 430,000 might respond. Evacuation beyond that ordered adds somewhat to evacuation times for those who are ordered to evacuate, though traffic modelling produces the counter-intuitive result that perfect compliance with evacuation orders would increase rather than decrease overall evacuation times (because of increased numbers evacuating from the designated areas).

To estimate the number of persons potentially injured or killed in the event of an accident at Shoreham, the consequence of the more severe of the two likeliest (1 in 10,000 years) core melt accident categories[27] was estimated by simulating 100 such accidents under different contingencies of release characteristics and weather. In most of the simulated cases, there were no early fatalities at all, in a few cases there were 400-600 early fatalities, in one case 1,600 early fatalities. Averaged over all of the simulated accidents, 25 early fatalities resulted if no protective action were taken, and 15 early fatalities if the entire affected population were to shelter themselves. Similarly, there were early injuries affecting up to 2,600 persons without sheltering, 1,300 persons with it, with an average of 67 persons injured if no protective action is taken, 18 persons if the population takes shelter.[31]

Longer term health consequences result from latent cancer induced by radiation exposure, even at very low irradiation dose levels. For that same category of accident and assuming a "worst case" wind towards New York City, accident-induced latent cancer fatalities within the 20-mile zone range from none at all, given sufficiently rapid evacuation (more rapid than feasible here), to 1,800 fatalities, based on a 3-hour departure delay and 20 travel hours to clear the zone,[32] a performance which this plan should be able to improve upon. Beyond the EPZ the dose levels and resulting incidence rates are much lower, but the potentially affected population is much higher. The result is 7,000 latent cancer deaths if outside the EPZ such an accident occurs, added to whatever number results from protective actions or their lack within the EPZ.[32]

Within this planning effort we have not studied either protective actions or consequences related to accident impacts on the food chain, water supplies, or water bodies (such as Long Island Sound), so these consequence estimates are independent of any effects which might result from that "ingestion pathway". This analysis also doesn't include

TABLE 4.2

PERCENT INTENDING TO EVACUATE BY DISTANCE FROM PLANT

Distance	I	II	III[a]
0-5	39.9	56.8	77.1
6-10	42.8	53.7	81.7
11-15	39.3	49.5	73.3
16-20	33.8	46.2	62.2
21-25	28.1	36.7	48.8
26-30	18.8	28.4	52.4
31-35	23.9	38.4	49.4
36-40	18.7	25.9	38.2
41-45	26.6	31.8	45.3
46-50	19.1	26.2	42.3
51+	14.8	20.6	37.4
Long Island	25% (217,000)	34% (290,000)	50% (432,000)

Source: Compiled by authors from the Shoreham Evacuation Survey, June, 1982.

[a]
I - recommendation to shelter
II - recommended 5-mile evacuation
III - recommended 10-mile evacuation

Modified by Herr from Johnson and Zeigler, reference 5B.

EXHIBIT E

health consequences of stress or of vehicle accidents (rough calculations indicate that an ordered 10-mile evacuation, with its spontaneous voluntary expansion, would likely result in one auto fatality and about 100 injuries at "usual" accident rates[28]).

ORGANIZATION

Responsibility for emergency planning and response is assigned to Suffolk County by New York State Executive Law Article 2-B.[22] As a result, the County Executive makes the key strategic decisions in emergency response, such as whether and where to evacuate, and the County Department of Emergency Preparedness provides operational control for the emergency response effort. Implementation depends upon the integrated actions of many agencies at all levels of government and upon coordination with LILCO.

The emergency response would operate from an Emergency Operations Center (EOC) at Yaphank, where a multifunctional communications network has been established by the Department of Emergency Preparedness (DEP). LILCO initiates the response sequence by determining that an emergency exists, by classifying it (Unusual Event, Alert, Site Emergency, General Emergency), and by notifying County Police, who in turn notify the DEP. The DEP then contacts appropriate County agencies and assembles an interdepartmental response team at the EOC.

In the most serious events, General Emergencies, the County Executive would decide upon the public response to be ordered, with advice from the State, County agencies, and LILCO. The complexity of that decision is as great as its importance. The "right" decision for ordered protective actions depends upon the magnitude, constituents, and timing of the releases from the plant, the likely amount and direction of wind and rain over the next day or so, the ability of transportation systems to timefully move the population, and whether people would move with or against the cloud direction. A better decision support system than is now available is a prerequisite to competent emergency decision-making.[23] New York State emergency officials are said to be readying such a system.

Upon that decision, sirens would be sounded to alert the public, and evacuation or sheltering instructions would be broadcast over the Emergency Broadcast System. Residents would have previous instructions on evacuation routes, supplemented at the time of alert based on projected doses, weather, and traffic. Generally evasion will be the best strategy. For example, for some persons moving eastward (despite the "dead-end") when the plume is moving westward will be the best option, though the "standard" will generally be westward movement.

State, county, and local police would help smooth traffic flow at key intersections (but not dictate its direction), would divert non-essential traffic from high-risk areas, and would provide area security following evacuation. The County DPW would be mobilized to try to keep roads cleared of disabled vehicles.

Arrangements for school-time evacuation of pupils are being developed with each potentially affected school district, the basic recommendation being that the children be evacuated together to relocation centers outside the EPZ by school buses rather than being returned home. Availability of bus drivers is a potential problem. In a County-commissioned personal survey, only one quarter of the present bus drivers indicated that in such a nuclear emergency they would resolve the conflict between family and bus driving responsibilities by first reporting to work for bus driving.[6] Special recruitment and incentives for drivers are essential if reliance on school buses is to eventually prove feasible.

Others without use of cars (auto-less households, institutional population, handicapped) are to be evacuated by school bus and special vehicles, with assistance by volunteer fire departments. Again, there is no present assurance of availability of an adequate pool of drivers for the buses. There also is no assurance of the response capacity of the fire departments. Only one in five present firemen, when personally surveyed, indicated that in a radiological emergency their first response would be to report to the fire station. Barely more than half of the firemen gave answers indicating that they would get to the station relatively quickly.[21]

Reception centers outside the high-risk zone would be set up by the County Department of Health Services at locations not yet determined. Lodging, food and water, reuniting families, and decontamination would be provided. Some medical services would be provided at those centers, but major reliance is being placed on special facilities at Central Suffolk Hospital. Paradoxically, Central Suffolk Hospital is deep within the EPZ, only ten miles east of the plant, so will require "hardening" or patients and staff might, in the worst case, risk exposure to illness-causing levels of radiation. Capacity is also a concern: its radiological unit can handle only one or two persons at a time, so a more extensive network of back-up facilities will have to be developed.

DEVELOPMENT

The following additional actions must be taken in order to establish an effective emergency response system for Suffolk County.

1. Preparation of Standing Operating Procedures (SOP's) detailing for each agency the response actions to be taken consistent with the broad directions of the Plan, and the implementing of necessary preparatory steps (e.g. obtaining and positioning communications devices).

2. Execution of written agreements with cooperating organizations to assure consistent relations regardless of changes in personnel over time.

3. Preparing to carry out training, exercises, and drills for emergency workers both at County and local levels.

4. Installation of sirens in those areas of the EPZ not now so equipped.

5. Resolution of the problem of potentially unavailable bus drivers, volunteer firemen, and other emergency workers. For example, a team of specially recruited, trained, and motivated "emergency response drivers" might be assembled, and the necessary contracts with bus owners negotiated to allow those drivers to operate the buses. This, as with several other problem resolutions, may depend for its practicality upon joining radiological emergency response efforts with other emergency response efforts: the drivers would be recruited to perform in all emergencies, not just rare radiological ones.

6. Development of a decision-support information system, possibly that being readied by New York State, to allow competently informed decision-making in the face of extraordinary stress coupled with complexity.

7. Resolution of how to deal with having the key hospital facility within a potentially impacted zone.

Over a somewhat longer run, further efforts are called for.

8. Organization of a permanent policy advisory group on emergency planning. The Shoreham controversy has temporarily assured high-level attention to emergency planning issues. In the future there needs to be an established focus to assure continuing attention to this issue.

9. Public education. Surveys and the TMI experience make clear that in an emergency people are unlikely to act in their own best interest unless better educated than they are as to what that best interest is. Part of that "education" involves persuading the public of County competence at giving reliable advice, so that recommendations to evacuate or not will be given substantial weight in individual decision-making.

10. Integration with other emergency planning. Some connections are now being made: the EOC communications network and use of the Emergency Broadcast System, for example. Much more should be done. County radiological emergency planning needs to be fully integrated with that of the State and that of LILCO. Within the County, there should be comprehensive emergency response systems, such as shared use of the siren system, a multi-emergency driver team, integrated public education, and development of a "buddy-system" for the auto-less to reduce emergency dependence on public transport.

REFERENCES

1. Memorandum from Peter F. Cohalan, Suffolk County Executive to Frank R. Jones, Deputy County Executive, March 29, 1982. The remaining members are Dr. Kai Erickson, Dr. Lee Koppelman, Herbert H. Brown, and Philip B. Herr.

2. (2A) U.S. NRC/FEMA, "Criteria for Preparatin and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants", NUREG 00654/FEMA-REP-1 (Rev. 1), Nov., 1980; (2B) NUREG 0396, EPA 520/1-78-016, "Planning Basis for the Development of State and Local Government Radiological Emergency Response Plans in Support of Light Water Nuclear Power Plants," December, 1978.

3. Budnitz, R.J.; Davis, P.R.; Fabic, S.; & Lambert, H.E., "Review and Critique of Previous Probablistic Accident Assessments for the Shoreham Nuclear Power Station", Future Resources Associates, Inc., (in two Volumes) 17 September 1982.

4. F.C. Finlayson and J.H. Johnson, Jr., "Basis for Selection of Emergency Planning Zones for the Shoreham Nuclear Power Plant, Suffolk County, New York", (Draft), October, 1982, F.C. Finlayson & Associates, Cerritos, CA.

5. (5A) Social Data Analysts, Inc., "Attitudes Towards Evacuation: Reactions of Long Island Residents to a Possible Accident at the Shoreham Nuclear Power Plant", June, 1982, for Suffolk County; (5B) James H. Johnson, Jr. and Donald J. Zeigler, "Further Analysis and Interpretation of the Shoreham Evacuation Survey". Nov. 1, 1982, for Suffolk County.

6. Social Data Analysts, Inc., "Responses of Emergency Personnel to a Possible Accident at the Shoreham Nuclear Power Plant", October, 1982, prepared for Suffolk County.

7. PRC Voorhees, "Suffolk County Radiological Emergency Response Plan," Working Draft Report, November, 1982, prepared for Suffolk County RERP Steering Committee.

8. A Category 5U accident, and a conditional probability of 0.1. See reference 4, figure 11.

9. Here and following, "core melt accident" means a category 1 through 5 accident, as defined in reference 3, pg. 15.

10. Reference 4, page 48.

11. Reference 5B, page 39.

12. Reference 4, figure 12 and Table 1.

13. Reference 2A, Appendix A.

14. PRC Voorhees, "Preliminary Evacuation Time Estimates for the Shoreham EPZ", November 1982, Table 10.

15. Reference 4, figure 17.

16. Reference 4, figures 16-21.

17. Integrated accident scenario, doses having a probability of 10^{-1} of being exceeded. See Ref. 4, fig. 12.

18. Integrated accident scenario, doses having a probability of 10^{-2} of being exceeded. See Ref. 4, fig. 12.

19. Category 5U accident, doses having a probability of 10^{-1} of being exceeded. See Ref. 4, fig. 11.

20. Reference 4, figure 2, plus phone conversation Herr/Finlayson, 11/23/82.

21. Reference 6, page 9.

22. Reference 7, page 25.

23. An example of such aid is given in S. Belardo, A. Howell, R. Ryan, and W.A. Wallace, "A Microcomputer-Based Emergency Response System for Public Officials", paper given at 1981 ANS Winter Meeting, San Francisco, CA.

24. PRC Voorhees, "Preliminary Evacuation Time Estimates for the Shoreham EPZ", November, 1982.

25. LILCO, "Shoreham Nulcear Power Station Emergency Plan", Revision 2, June 29, 1982.

26. Subcommittee on Oversight & Investigations, Committee on Interior and Insular Affairs, U.S. House of Representatives, "Calculation of Reactor Accident Consequences (CRAC2)", November 1, 1982.

27. Category IU accident. See Reference 4, page 34.

28. Herr Associates calculations, rates from J. Hans and T. Sell, Evacuation Risks, USEPA, Office of Radiation Programs, Washington, D.C., 1974.

29. J.H. Johnson, Jr., "3. Evacuation Planning for a Radiological Emergency", unpublished memo, c. 10/82.

30. The much-publicized Sandia study indicates 140 mean early fatalities, 870 mean early injuries, and 3,400 mean latent cancer fatalities from an "SST1" accident at Shoreham. Those figures, prepared for purposes of site comparisons, do not reflect analysis of the actual nuclear plant, sheltering, or evacuation potential at Shoreham so are not appropriate for evaluating action locally. See NUREG/CR-2239 SAND81-1549, "Technical Guidance for Siting Criteria Development", D.C. Aldrich, J.L. Sprung, and others, Sandia National Laboratories, November, 1982.

31. Reference 4, pp 34-37, plus phone conversation Herr/Finlayson, 11/23/82.

32. Reference 4, table 8, plus phone conversation Herr/Finlayson, 11/23/82.

EXHIBIT 8

Suffolk County Emergency Planning Experts

Fred Finlayson, Ph.D., of Finlayson and Associates, an expert in the consequences of radiological accidents;

Edward P. Radford, M.D., Professor of Environmental Epidemiology, University of Pittsburgh and former Chairman of the Committee on Biological Effects of Ionizing Radiation of the National Academy of Sciences;

Philip B. Herr, Professor of Planning at MIT;

Kai T. Erikson, Ph.D., Professor of Sociology, Yale University;

James H. Johnson, Ph.D., Assistant Professor of Geography, UCLA;

Donald J. Zeigler, Ph.D., Assistant Professor of Geography, Old Dominion University;

PRC Voorhees of McLean, Virginia, a firm specializing in traffic planning;

Robert J. Budnitz, Ph.D., of Future Resources Associates, Inc., an expert on the assessment of risks and accident probabilities at nuclear power plants;

Stephen Cole, Ph.D., Professor of Sociology, Stony Brook

CORTLANDT NEWS RELEASE

Van Wyck Street
Croton-on-Hudson, N.Y.

Supervisor:
Charles G. DiGiacomo

May 16, 1983

Statement given to press by Charles G. DiGiacomo, Supervisor of the Town of Cortlandt, relative to closing of Indian Point nuclear facility in Buchanan, New York.

"The economic impact on the people of the Town of Cortlandt will be devastating if the nuclear plants at Indian Point are ordered to be closed by the Federal government.

Taxes would increase substantially as indicated on the enclosed graph paper. The nuclear facility is the largest single employer in our area and there would be an immediate loss of 2,000 jobs, 750 of which are Cortlandt residents. According to national average statistics this would represent a loss of $6,000,000. in annual retail sales within our marketing area.

This decline would also spur further unemployment in our area in retail trade, construction, transportation, communications and service industries.

Higher energy rates would add to the increased cost of continuing business in our area. This decline in population and loss of over 8½ Million Dollars in personal income, along with the loss of local tax revenues would have seriously damaging effects on our school systems and public services.

The Village of Buchanan, which will suffer from a 53% tax increase, has a population of 2,100, one half of which are senior citizens living on faxed incomes.

I am calling upon the Federal government to make up for any lost taxes since it is the Federal government which is imposing the penalty. On one hand the Federal government is talking about shutting the plants down because of plans which are devised to handle situations which in all likelihood will never happen, (we have 20 years of safe operation to demonstrate that.) On the other hand, if the Federal government imposes this penalty, you are talking about the certainty of this adverse economic impact in our community.

Since federal authorities license, regulate and shut down nuclear plants, I feel they should be responsible for the cost of guaranteeing safety and averting the economic impact of a closing."

TOWN OF CORTLANDT
MUNICIPAL BUILDING
CROTON-ON-HUDSON, N. Y. 10520

CHARLES G. DIGIACOMO
SUPERVISOR

(914) 271-5196
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May 13, 1983

In view of the Nuclear Regulatory Commission's threatened shutdown of the Indian Point nuclear plants in Buchanan, New York, I feel the Federal government is liable for whatever economic hardships are suffered by the communities and districts which will be affected by the tremendous tax loss. Since federal authorities license, regulate and shut down nuclear plants, I feel they should be responsible for the cost of guaranteeing safety and averting the economic impact of a closing.

Currently being considered by the New York State legislature is a bill to require financial aid to towns, villages and districts that would lose tax revenue when a public utility closes by order of the state or federal government.

Since other plant closings could occur in any state in the nation, I am requesting that consideration be given to initiating federal legislation which would provide federal funds to municipalities and districts which would suffer financially from the involuntary shutdown of a public utility.

Considering that the federal government provides assistance to communities which are devastated by such disasters as tornadoes, hurricanes and floods, certainly the impact of the loss of rateables involved at Indian Point or any other public utility nuclear generator location would be equally as devastating to the local community.

Please give every consideration to this request and convey your thoughts in the matter to me. My staff and I stand ready to assist you in any way that we can to provide you with any information necessary for the introduction or implementation of federal legislation.

Respectfully,

Charles

Charles G. DiGiacomo,
Supervisor

CGD:eg

TOWN OF CORTLANDT
MUNICIPAL BUILDING
CROTON-ON-HUDSON, N. Y. 10520

CHARLES G. DIGIACOMO
SUPERVISOR

(914) 271-5156
(914) 739-3522

January 26, 1982

Mr. Tom Schatz
Congressman H. Fish Office
2227 Rayburn Office Building
Washington, D. C. 20515

Dear Mr. Schatz:

Pursuant to your conversation with my aide last week I'm enclosing copies of all material pertinent proposals before the New York State legislature relative to amendments to the Real Property Tax Law which would provide state aid in connection with loss of certain public utility property.

In the event that our local nuclear energy plants at Indian Point are taken out of service, it would be imperative that we have some financial aid to alleviate the disastrous impact this would have on the local taxpayers.

I have been advised that Senate bill #5325 and Assembly bill #7371 are currently before the State legislators and, upon receipt of a copy, will forward them to your office.

Anything that Congressman Fish is able to do on a Federal level to provide aid in the event of delicensing of public utility properties would be extremely valuable to us.

I look forward to hearing from you with regard to this matter.

Yours very truly,

Charles G. DiGiacomo,
Supervisor

CGD:eg
Enc.

TOWN OF CORTLANDT
1985 TAX LOSS AND ESTIMATED STATE AID RE. SECTION 546
of REAL PROPERTY TAX LAW IF AMENDED

1	3 (per $1,000 assessed val) 1983 or 1983/4 tax rate	5 % assessed valuation loss	6 Dollar Loss	7 STATE 1984	8 AID 1985	9 BASED ON 1986	10 SECTION 546. 1987	11 1988
TOWN OF CORTLANDT	9.03	29%	355,459.63		284,367.70	213,275.78	142,183.85	71,091.93
TOWN OF CORTLANDT OUTSIDE VILLAGE OF CROTON	1.25	33%	49,205.38		39,364.30	29,523.23	19,682.15	9,841.08
VERPLANCK FIRE DISTRICT	4.22	69%	166,117.35		132,893.88	99,670.41	66,446.94	33,223.47
HENDRICK HUDSON SCHOOL DISTRICT	* 146.77	45%	5,777,628.21		4,622,102.57	3466,576.93	2311,051.28	1155,525.64
HENDRICK HUDSON LIBRARY	* 1.93	41%	75,814.07		60,651.26	45,488.44	30,325.63	15,162.81
VILLAGE OF BUCHANAN	25.00	53%	862,490.00	689,992.00	517,494.00	344,996.00	172,498.00	
*Estimated 83/84	TOTAL		7,286,714.64	689,992.00	5656,873.71	4199,530.79	2742,187.85	1284,844.93

NOTES

1. Based on current assessed valuation less reduction agreements with Con Ed for 1984.

2. Based on 1983 tax rates.

3. Based on plants being closed permanently as of June 8th, 1983
   - a. loss would affect 1984 Town tax roll for 1985 Town Taxes & 1985/86 school taxes.
   - b. loss would affect 1984 Village tax roll for 1984/85 Village taxes.

4. State aid per Section 546 to be reduced as follows:
   - a. any growth in assessment roll in taxing district.
   - ****b. increase in school aid to Hendrick Hudson School District based on lower assessed valuation.

5. These figures assume -0- assessed valuation on Indian Point plants 1 and 2 although there would probably be some residual assessed valuation.

STATE OF NEW YORK

S. 1032 A. 1237

1983-1984 Regular Sessions

SENATE–ASSEMBLY

January 12, 1983

IN SENATE -- Introduced by Sen. GOODHUE -- read twice and ordered printed, and when printed to be committed to the Committee on Local Government

IN ASSEMBLY -- Introduced by M. of A. RYAN -- read once and referred to the Committee on Real Property Taxation

AN ACT to amend the real property tax law, in relation to state aid in connection with loss of certain public utility property

The People of the State of New York, represented in Senate and Assembly, do enact as follows:

Section 1. Subdivisions one and seven of section five hundred forty-six of the real property tax law, as added by chapter six hundred thirty-six of the laws of nineteen hundred sixty-one, are amended to read as follows:

1. State aid shall be payable to any tax district, as defined in subdivision seven of this section, when on any assessment roll the taxable assessed valuation in such district is decreased in any year by an amount equal to or in excess of [ten] *seven* percent of the total taxable assessed valuation on the latest preceding assessment roll because of the removal from such assessment roll of taxable real property of a public utility company, as defined in section two of the public service law, as a direct or indirect consequence of the *involuntary withdrawal or* surrender of any license, franchise, permit or authorization of such utility company [where the undertaking or entering into of any project, operation, activity or contract actually undertaken or entered into by the state or any state agency or any authority or commission created or continued under the public authorities law is by] *to continue to operate a nuclear fueled generator pursuant to* any law or regulation of this state or of the United States [specifically conditioned upon such

EXPLANATION--Matter in *italics* (underscored) is new; matter in brackets [ ] is old law to be omitted.

surrender]*. For purposes of this section, intentional noncompliance with laws or regulations or negligent conduct of the public utility company resulting in the withdrawal or surrender of a license, franchise, permit or authorization shall not be deemed to be "involuntary".*

7. The term "tax district" shall mean a county, a city [and]*, a town, a village,* a [city] school district [located in a city qualifying for state aid under the provisions of this section] *and a special district*.

§ 2. This act shall take effect immediately and shall be deemed to have been in full force and effect from and after May first, nineteen hundred eighty.

Hendrick Hudson —

BLYTH EASTMAN PAINE WEBBER
INCORPORATED
1221 AVENUE OF THE AMERICAS
NEW YORK, NEW YORK 10020
212-730-8500

April 28, 1983

The Honorable Alan K. Simpson
Chairman
Subcommittee on Nuclear Regulation
SH 709
Washington, DC 20510

Dear Senator Simpson:

RE: Hearings on Nuclear Response Plan
Subcommittee on Nuclear Regulation

My name is Michael J. Johnston. I am President of Blyth Eastman Paine Webber Inc., one of the nation's leading investment banking firms, and a firm particularly active in the financing of public utilities. As measured by size and number of public financings, we rank among the five leading investment banking firms in the financing of the electric utility industry. Among our clients are such companies as Long Island Lighting, Pacific Gas & Electric and Public Service of New Hampshire, all of which have been involved in large nuclear power construction programs.

Construction programs, such as those mentioned above, have tended to exert financial pressures on the electric utilities much more severe than originally contemplated by either the utilities or their regulators as a result of 1) the rapid rise in construction costs, 2) the increase in financing costs and 3) greatly expanded construction time periods which have been experienced in recent years. At the same time, efforts by regulators to relieve utilities of these pressures through measures which allow rate recovery during construction periods have been, by and large, insufficient. As the financial conditions of utilities have deteriorated, the rating agencies have reduced the ratings on the companies' securities, resulting in 1) further increases in debt financing costs and 2) a greater reliance on financing with more expensive equity. In order to avoid further financial pressures, which at the least can only result in higher utility rates for energy consumers, and which at the worst would result in the voluntary or, possibly involuntary cancellation or abandonment of existing nuclear projects, we strongly urge that all relevant government agencies use their best efforts to expedite completion and start-up of these nuclear power plants on a timely but safe basis. When the nuclear plants presently under construction become operational, the financial pressures on the owner electric utilities will subside. And coincidentally, the United States will have taken a giant step towards achieving energy independence.

In the face of the above considerations, it is particularly disturbing for us to contemplate the possibility of unnecessary delays in the start-up of nuclear power plants as a result of local political bodies, decision-making credentials of which are questionable, taking actions bordering on the irresponsible. The history of the Emergency Response Plan for the Shoreham plant of Long Island Lighting is an excellent example of the problem to which we refer. Shoreham has received all the necessary construction permits and approvals from regulatory bodies and has been under construction for over 10 years. At a cost of at least $3.2 billion, it is now within months of physical completion. Emergency Response Plans have been developed through the joint efforts of Suffolk County and Long Island Lighting, but at the 11th hour, Suffolk County, in repudiating the findings of two previous Response Plan studies which it had sponsored, is now taking the position that a satisfactory Emergency Response Plan cannot be developed. We fear that such actions will result in additional costly delays, further weakening the financial condition of the Long Island Lighting Company, ultimately resulting in even higher rates for the consumer.

While our own perception is that the Shoreham plant does not present any unusual problems with respect to Emergency Response, we do not personally possess the credentials to render such a decision. Neither, however, do the members of the Suffolk County legislature. Ideally, the electric utility and the local authorities should work together to come up with a mutually satisfactory plan. But, in any event, the Nuclear Regulatory Commission should set the standards, make the evaluations, and be prepared to give final approval to a plan on a timely basis, that will not cause any delay in fuel-loading or start-up.

Sincerely,

Michael J. Johnston
President
Blyth Eastman Paine Webber, Inc.

/rv

cc: Senator Gary Hart
Senator Daniel P. Moynihan

Donaldson, Lufkin & Jenrette
Donaldson, Lufkin & Jenrette Securities Corporation • 140 Broadway, New York, NY 10005 • (212) 902-2000

J. Christopher Young, CFA
Senior Vice President
Fixed Income Division
(212) 902-2001
902-2003

May 11, 1983

Mr. James Curtis
United States Senate
6233 Dirksen Senate Office Building
Washington, D. C. 20510

Dear Jim:

I've enclosed two items for your review.

The first is that part of an NRC transcript which touches upon an area I believe is of interest to you: transactions between electric companies attempting to license new nuclear plants and the state/local entities involved--see page 14. Seems like this particular deal turned out to be a pretty good one for Cincinnati Gas & Electric.

The second piece is a review we recently did for clients attempting to evaluate the financial implications of the emergency planning requirements--what are the risks? how might investors gage them? what are the risks on a case-by-case basis?

I might emphasize that the nature and degree of the risks we foresee potentially coming out of the emergency planning area are second in severity only to those of the TMI accident itself. While it's far less than certain events will actually unfold to exert these financial pressures, the probability in our view appears to be high--the road seems to be wide open.

It's clear that institutional investors remain somewhere between unaware and unconcerned about these prospective risks. Don't let this lack of quick and full response fool you. The market is an ultimately efficient mechanism--it may be a little sluggish coming to grips with new elements of risk, but it eventually does do so, and does it with force. Long Island Lighting for example traded well ahead of (e.g., at a lower yield than) the bottom credit tier of the electric industry prior to the full revelation of the Shoreham/planning problems. It now trades even with or behind the very highest risk electric credits. The market's current recognition of LILCO's risks would make it difficult for a major institution to sell any appreciable amount of its debt securities on anything but the most distressed price basis. Our position is that planning risks go well beyond LILCO--the market will come to recognize and value these risks.

Best regards,

374

ORIGINAL

OFFICIAL TRANSCRIPT
PROCEEDINGS BEFORE

NUCLEAR REGULATORY COMMISSION

T

DKT/CASE NO. 50-358

TITLE THE CINCINNATI GAS & ELECTRIC COMPANY, et al.
-and
WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1

PLACE Cincinnati, Ohio

DATE January 5, 1983

PAGES 1 thru 244

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ALDERSON REPORTING
(202) 628-9300
440 FIRST STREET, N.W.
WASHINGTON, D.C. 20001

JAN 10 1983

UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

- -x
In the Matter of: :
THE CINCINNATI GAS & ELECTRIC :
COMPANY, et al., :
-and- : Docket No. 50-358
WM. H. ZIMMER NUCLEAR :
POWER STATION, UNIT 1 :
- -x

Wednesday, January 5, 1983
Federal Office Building
Room 5409
5th and Main Streets
Cincinnati, Ohio

The public meeting convened, pursuant to notice, at 9:33 a.m.

PARTICIPANTS:

For the NRC:

JAMES G. KEPPLER, Regional Administrator, Region 3

ROBERT WARNICK, Director, Office of Special Cases

STEPHEN LEWIS, Regional Counsel, Region 3

PARTICIPANTS, Continued:

JAMES H. SNIEZEK, Deputy Director, Office of Inspection and Enforcement

B. JOE YOUNGBLOOD, Chief, Licensing Branch One

LILLIAN CLOVILLE, Executive Legal Director's Office

DORWIN HUNTER, Office of Special Cases for Zimmer

LES KENTNER, Licensing Project Manager

FRED CHRISTIANSEN, Senior Resident Inspector at Zimmer

For the Women's City Club:

HELEN BLACK

For the Coalition for Affordable Safe Energy:

PHIL AMADON

For the Government Accountability Project/ Institute for Policy Studies:

TOM DEVINE

For the Critical Mass Energy Project:

DAVE W. JONES

PARTICIPANTS, Continued:

For the City of Cincinnati:
THOMAS B. BRUSH, Mayor
GUY C. GUCKENBERGER, City Council

For the Office of the Consumers' Council:
GRETCHEN J. HUMMEL

For the Environmental Advisory Council:
HELENE GENSER
DAVE ALTMAN

For Intervenor in Licensing Hearings:
DAVID B. FANKHAUSER

For Energy Ratepayers Organization:
ROBERT AIKEN

For League of Women Voters:
SYLVIA MERSFELDER

For Individuals:
WANDA CHANNING
THOMAS APPLEGATE

For Zimmer Angry Citizens:
JENNY DENNISON

For Sierra Club of Kentucky:
MARY DAVIS

PROCEEDINGS

MR. KEPPLER: I would like to call this meeting to order.

Good morning, ladies and gentlemen. I am Jim Keppler, regional administrator of the NRC's Region 3 office, and I would like to thank you for meeting here with us today.

The purpose of this meeting, which is being transcribed, is to permit the NRC to obtain supplemental information concerning some of the written comments we have received in connection with Cincinnati Gas and Electric Company's proposal to retain Bechtel Power Corporation to fulfill the independent review of CG&E's management of the Zimmer project.

Copies of the transcript will be placed in the public document rooms in Washington, D.C., and Batavia, Ohio, as part of the Zimmer record.

I would like to start today by having the NRC people who are here present introduce themselves, and then ask those persons who have provided comments to the NRC or who will be representing commenters to introduce themselves and state their affiliation.

Steve, do you want to start?

MR. LEWIS: I am Steven Lewis, regional counsel, Region 3.

MR. WARNICK: I am Bob Warnick, the director of the Office of Special Cases, responsible for Zimmer and Midland.

MR. SNIEZEK: I am Jim Sniezek, deputy director, Office of Inspection and Enforcement, NRC.

MR. YOUNGBLOOD: I am Joe Youngblood, chief, Licensing Branch One, NRC.

MS. CLOVILLE: I am Lillian Cloville. I am with the Executive Legal Director's Office of NRC.

MR. HUNTER: I am Dorwin Hunter. I am Project One, Office of Special Cases for Zimmer. I work for Mr. Warnick.

MR. KENTNER: I am Les Kentner. I am the licensing project manager for NRC.

MR. CHRISTIANSEN: I am Fred Christiansen, senior resident inspector at Zimmer.

MR. JONES: Okay. I am Dave Jones, representing the Public Systems Critical Mass Energy Project.

MR. DEVINE: Tom Devine. I am here from Miami Bailey Power Project.

MR. AMADON: I am Phil Amadon, for the Coalition for Affordable Safe Energy.

MS. BLACK: I am Helen Black for the Women's City Club of Cincinnati.

MS. GENSER: Helene Genser, the Environmental Advisory Council.

MR. ALTMAN: Dave Altman, the Environmental Advisory Council.

MR. GUCKENBERGER: Guy Guckenberger, Cincinnati City Council.

MR. FANKHAUSER: I am David Fankhauser. I am an intervenor in the operator license hearings.

MR. BRUSH: I am Tom Brush, mayor of the City of Cincinnati.

MS. HUMMEL: I am Gretchen Hummel, here on behalf of William A. Spratley, the Ohio Consumers Council.

MR. KEPPLER: I don't know who all provided us written comments, but those that did, would they please introduce themselves in the back rows?

MR. AIKEN: Mr. Chairman, I am Robert Aiken with the Energy Ratepayers Organization, and I have asked to make a statement.

MR. KEPPLER: Any others? Yes?

MS. MERSFELDER: Sylvia Mersfelder, from the League of Women Voters of the Cincinnati area.

MS. CHANNING: I am Wanda Channing, and I represent myself and two other ladies in Wilmington.

MR. KEPPLER: Okay.

Before pursuing specific written comments, let me lay the background for this meeting today.

On November 12, 1982, the Commission issued an order which immediately suspended all safety-related construction activities at the Zimmer nuclear facility, and required the licensee to show cause why construction should not remain suspended pending a number of actions to be completed by the licensee.

These actions are, Number One, an independent review of CG&E's management of the Zimmer project to determine measures needed to ensure that construction of the Zimmer plant can be completed in conformance with the Commission's regulations and the construction permit.

Number Two, CG&E's submittal to the NRC staff of a recommended course of action based on the independent review.

Number Three, CG&E's submittal to the NRC staff of an updated comprehensive plan for verification of the quality of construction of the Zimmer facility.

And Number Four, assuming satisfactory completion of the preceding steps, submittal for NRC staff approval of a comprehensive plan for the continuation of construction.

The decision presently before the NRC staff relates only to the first of these phases, namely, the approval of an independent organization to conduct the review of CG&E's management of the Zimmer project.

By letter dated November 26, 1982, Cincinnati Gas and Electric requested the NRC staff to approve Bechtel Power Corporation as the independent reviewer for the first phase. Since that time, the NRC staff has been reviewing that submittal. Furthermore, copies of that submittal were provided to interested parties for their comment and to date written comments, both pro and con, have been received from over 70 interested organizations or citizens.

Mr. Strasma, my public affairs officer, has a limited number of packages containing the comments received to date, and of course all of this correspondence will be a part of the docketed record for Zimmer.

We have convened this meeting today to provide an opportunity for the NRC staff to obtain clarification of the comments provided. We do not necessarily have questions for every commenter. But please be assured that we intend to consider all comments filed.

Based upon the comments received and our own review to date of the submittal by CG&E, we have requested CG&E and Bechtel by letter dated December 28, 1982, to provide supplemental information in some possible areas of concern. Copies of that letter were sent to all persons whose comments had been received as of that date, but Mr. Strasma has some extra copies for those who have not received their copies.

Following receipt of CG&E's and Bechtel's response, and I might add, I was told that that has been filed yesterday -- we have not yet seen it -- we will determine whether we require any additional information or whether we have adequate information to make a determination on CG&E's proposal. If we conclude that the information provided is adequate, we intend to make a decision as soon as possible. Our decision and supporting analysis will be transmitted to all commenters.

We have grouped the comments into subject areas, and plan to focus upon each of those areas in turn. During the course of the discussion, we will identify persons who have offered particular comments on which we want to ask questions.

There are two points I want to emphasize today. First of all, we are focusing exclusively on the independent management review phase of the order. There will be other opportunities for public comment concerning other phases of the order.

Secondly, it is not our intent to debate the issues under discussion, but rather to make sure we have the full message the writer wished to convey.

After we get through with the -- discussing the written comments, if time permits, we will offer an opportunity for people who have not provided comments to make a short statement expressing any points they wish to have made.

Okay. With that, I would like to start off with the discussion of the concern for Bechtel's independence. One area that was commented upon heavily by a number of people has to do with the fact that Cincinnati Gas and Electric retained Bechtel a few days in advance of the Commission order.

Many commenters expressed concern that this involvement compromises the independence of Bechtel to do a meaningful management review, and particularly strong comments were provided in this regard by the City of Cincinnati, by the Environmental Advisory Council, by the Women's City Club, the Ohio Consumers Council, Critical Mass, the Government Accountability Project, and the Sierra Club, and we would appreciate it if these organizations, one at a time, would amplify their concerns in this regard.

Could we start with the City of Cincinnati, please?

MR. GUCKENBERGER: Mr. Chairman, the Mayor will state the City's position. I would like to make some follow-up comments.

MR. BRUSH: I believe on Page 2 of our letter of December 15th to you, Mr. Keppler, set forth the City's position, which was basically, we were concerned with the fact that CG&E's decision to engage the services of Bechtel as a management, quality assurance, and construction consultant may jeopardize the conclusion that the interests of Bechtel are sufficiently severable from those of CG&E to qualify them for this type of independent review.

So, that is why we urged them to review the contracts between CG&E and Bechtel which preceded the issuance of the show cause order in determining whether or not the spirit of disinterest or independence can be achieved by the selection of Bechtel, so --

MR. KEPPLER: Could I interrupt?

MR. BRUSH: Yes.

MR. KEPPLER: I would like to separate out, if we could, because we are going to discuss that aspect separately. I would like to, if I could, focus strictly on the part of the concern that was laid out for Bechtel being brought on board in advance of the order, to what extent people feel that alone compromises things.

I recognize there is a separate issue of concern, and we laid that out in our letter to Cincinnati Gas and Electric, regarding their intent to retain Bechtel for a second phase of that job, too, and I think that is the point you were really focusing on here.

MR. BRUSH: Yes. We are not privy to any agreements or discussions between CG&E and Bechtel prior to the selection, but it does raise one of those threshold kind of questions. If you hire an auditor just prior to the show cause order, it raises at least that initial question of independence. We have no further independent knowledge as to whether or not they are indeed going to conduct an independent audit or not.

MR. KEPPLER: By itself, does the fact that the agreement that may have been reached between CG&E and Bechtel a few days in advance of the order, by itself, is that a concern to the City?

MR. BRUSH: It's a concern. And really at this point no more than that. It just raises the question. We don't have the answer to the question. That's why we made the comment as we did.

MR. KEPPLER: Okay. Thank you.

Yes?

MR. GUCKENBERGER: First of all, let me say that the City of Cincinnati has been in a real bind, to put it bluntly, in commenting publicly on the Zimmer facility and safety-related issues, because we, as you know, or may know, we entered into an agreement in October of 1981 that said in exchange for certain monitoring equipment at the facility we will not directly or indirectly oppose the licensing of the plant. We will remove ourselves from the licensing proceedings.

So, our comments are significant in that background. We are very nervous about violating that agreement. We intend as of this date to live up to that agreement and to follow it to its letter, and we have in fact gone so far as to discuss our possible positions with CG&E, possible public positions, to get their feeling about whether it violates the agreement.

So, with that background, we have made these comments. What is apparent to the council is that there is great public concern about safety at Zimmer. That concern is just not anti-nuclear people. It is concern expressed by League of Women Voters, by NAACP, by the Women's City Club, groups that have traditionally not identified themselves as being anti-nuclear, and that public concern, I think, dictates that anything done at Zimmer be done in such a way to ensure public confidence.

And when you have prior communications between CG&E and Bechtel prior -- an apparent prior arrangement, it makes a number of us very concerned about whether there will be public confidence in a management review of the process, or will this be a joint venture to get the plant completed.

And please understand that I personally and many council members and many organizations believe that there is nothing wrong with the plant being completed, but the primary objective should be a safe operation, and one in which we hopefully never have to use our monitoring equipment, but the primary concern is one of public confidence, and that the independent management review be truly that, an independent management review.

MR. KEPPLER: Okay, but your concern -- Would your concern be alleviated with the understanding of the details that are related to the relationship between CG&E and Bechtel?

MR. GUCKENBERGER: I think so. I think part of that process has to include some very stringent rules about communications between CG&E and Bechtel during the process, about the NRC administration being aware of those communications, and there not being a situation where the boys at Bechtel can call up the boys at CG&E and say, hey, you guys, we are thinking about doing this, but it would get you in trouble, what do you think?

That is the kind of thing that I think has to be avoided. In order to ensure public confidence, you would have to make sure that there is not only an actual independent review, but an aura of independent review. Now, whether that can be accomplished between Bechtel and CG&E, I don't know, and I'm going to have to leave some of that to your discretion.

Apparently, if rules could be laid down where communications and actions are first reported or at least simultaneously reported to the NRC and CG&E at the same time so you can have oversight and ensure yourself throughout the process that this is an independent review, I think it would be helpful. I think it is also necessary for Bechtel to be required to speak to the public, not necessarily have a public hearing, or be gotten at publicly, but to talk to people like GAP, and to the whistle-blowers that have been involved in this, so that that input can be inserted in the management review.

I think that is very important. And I think it is important that there be some indication that they have listened, and reacted to what they thought was positive. I was a little concerned in one statement by a Bechtel official who said, yes, we will talk to those people who we consider competent. I am not so sure that is enough. I think they may make a decision as to what is objective and rational comment, but I think they ought to talk to as many people as possible.

As a council member, we have people come into our office, some of which are crazy and some aren't, but you never make the judgment, I am not going to listen to them because they sound a little nutty, because in many cases people who start out sounding a little nutty in fact have a real story to tell, and you are glad you listened.

MR. LEWIS: Councilman, you have seen the questions that we asked of CG&E and Bechtel, have you?

MR. GUCKENBERGER: I don't think so.

MR. LEWIS: They do cover some of these areas you are raising, so hopefully the response will address your concerns.

MR. BRUSH: Well, in the last page of our letter, we asked specific questions to the relationship between Bechtel and CG&E prior to the order.

MR. LEWIS: We were influenced in those

suggested questions and what we posed to the company.

MR. GUCKENBERGER: Yes, I have seen your questions. I am sorry. I was -- Somebody had mentioned questions, other questions.

MR. KEPPLER: Some of those questions, and I believe they were also raised by the Environmental Advisory Council, go into considerable detail in terms of the actual communications and negotiations and discussions that took place prior. Could you give us -- We sort of wondered what your view was of the -- to go into it in that GAP. Could you give us your thoughts on that?

MR. BRUSH: Some of the thoughts that I have are that, Number One, I understand that Bechtel has two separate types of operations, I think, one out of Ann Arbor and one out of California. I'm not certain --

MR. KEPPLER: They have several locations. It is not just those two.

MR. BRUSH: Yes, but there is a team that would come out of, let's say, Ann Arbor for the management, to tell CG&E what needs to be done to complete the plant, and maybe the group out of California to do the management review. And our questions, when we get into questions like who talked to whom beforehand, is an attempt to find out at this point whether or not there are some relationships between those two groups, whether or not you are going to have the same people doing the two different types of review.

Really, getting back to the heart of the original question, I think what you are asking is, do we feel that because CG&E retained Bechtal prior to the order, that that per se is enough to disqualify Bechtel, and I think we are reluctant at this point to come out and say yes, because we want these questions answered first, but it certainly does raise very serious questions as to, I think, as Mr. Guckenberger said, the appearance of independence.

Maybe they are in fact absolutely independent. Maybe these questions will reveal it. But at least at the outset it doesn't look as though they would be.

MR. KEPPLER: Okay. Mr. Altman.

MR. ALTMAN: Your question about whether the selection of Bechtel just before the announcement of the order raises an issue of public suspicion, public concern about the independence of Bechtel is, of course, addressed in our position. The problem is that more was done than just announcing Bechtel would be part of an independent review. It was announced that Bechtel would

Donaldson, Lufkin & Jenrette

Research Meeting Notes
May 9, 1983
Severe Financial Risk: Emergency Planning Requirements

-It's become increasingly clear over recent weeks that emergency planning requirements now in place

1. are already creating very real financial risks for a few major electric companies, and

2. hold the potential of creating equally severe financial risks for a very broad sector of the remainder of the industry

--the market has, so far, responded only partially to these growing risks--failing to recognize the full nature and degree of the risk in some cases, failing to recognize any of the potential risk in many other cases

--we believe that these financial risks are real, should be properly evaluated by investors, and will soon become more fairly reflected in the market

-events that will more clearly reveal the nature of the risks to investors and more solidly convince investors of the degree of those risks are at hand--Shoreham and Indian Point (see 4/11/83, 5/2/83 Notes) are the tip of the iceberg.

-The nuclear industry's emergency planning requirements are largely outgrowths of the TMI-2 accident in 3/79

--the establishment and application of the planning requirements have been shaped by 3 forces

-Congress
-Federal Emergency Management Agency
-Nuclear Regulatory Commission

--it's important first to recognize that the requirements as they stand and as they are applied are a function of (a) the statutes themselves and (b) the interpretation of these statutes

-both the statutes and their interpretation are in a period of significant evolution

--FEMA's final emergency preparedness rules have not yet even been published--now scheduled for later this year

-the financial risks confronting and to be confronting investors flow as much from the prospects of the evolutionary process as they do from the specifics in place today.

-The basic emergency planning statutes apply at two distinct levels

1. new reactors--an emergency response plan must be approved and in place prior to the issuance of a full power operating license

-NRC may grant fuel loading/5% low power testing license without an approved plan in place

2. existing reactors--approved emergency response plan must be in place--all due within the next 2-3 years (varies by site)

-to date, 16 of the 53 active sites have approved plans in place--another 27 sites have submitted final plans for approval

--in both cases, the emergency response plan must be judged to be adequate "to protect the health and safety of the people living in the vicinity of the nuclear power plant and provide reasonable assurance that appropriate protective measures can and will be taken offsite in the event of a radiological emergency at the plant."

--in part, it is the subjectiveness of this requirement and the wide swings in its interpretation over periods of time that create the uncertainty and, therefore, the risk

-FEMA's Planning Guidance manual states: "A planning basis cannot be quantified precisely. Rather, it provides quantitative bounds on the range of distance, times, and radiation hazards associated with a type of incident."

-how absolutely must "health and safety" be protected? what are acceptable risks? losses? what is "reasonable assurance"? have never been strictly determined by FEMA/NRC

-what is the "vicinity" of the plant? 10 miles? 20 miles? 50 miles? has never been set by FEMA/NRC; can vary by site based on planners' judgment

-how quickly must "protective measures" be taken? 15 mins.? 30 mins.? 10 hrs.? has never been set by FEMA/NRC; can vary by site based on planners' judgment--must "protective measures" include evacuation? has never been decided by FEMA/NRC

-the NRC now has a major study underway to estimate what the "radiation hazards" would be from different accidents--the "source terms", as the NRC calls them, have never been firmly established

--won't every TMI and Salem accident act to alter dramatically the boundaries being used to judge distance, times, and hazards? won't every Diablo Canyon and Zimmer incident act to alter dramatically the boundaries being used to judge exposure to risk and reasonable assurance? we believe so--and we believe the NRC has now come to believe so.

-FEMA plays a critical role within the emergency planning process and, therefore, within the nuclear licensing process--in effect, FEMA has become the linchpin tying the 2 processes together

--FEMA reviews and evaluates the emergency response plans submitted to it--also oversees and evaluates the emergency exercises conducted annually as required by NRC licensing rules

--FEMA's evaluation is then submitted to NRC for its consideration of the adequacy of the planning requirement within the licensing process--acts as an "outside" expert witness in NRC proceedings

-the NRC recently acknowledged in testimony presented before Congress that, for all intents and purposes, it simply adopts in practice the FEMA evaluation as its own

-indeed, NRC no longer has the in-house expertise to develop its own definitive judgments about proposed plans, having transferred both the primary responsibility over and the manpower/resources dedicated to this area to FEMA in 1980.

-Existing statutes permit any of 3 parties to develop emergency response plans and to submit those plans to FEMA for review:

-local government agencies
-state governments
-electric companies

--in practice, all emergency planning emanates from group 1, the local government agencies or political subdivisions surrounding the site (e.g., counties, cities, townships, etc.)

-logical since this is the group with a) the most direct knowledge of what a successful offsite emergency plan would require and b) the most direct control over the critical individual resources and authorities which would be required (e.g., buses/subways, police/fire, traffic control, etc.)

--to date, no state government has submitted a wholly state-developed emergency plan to FEMA for review and evaluation

-indeed, in several recent cases, state governments have refused to create a plan without the full participation and endorsement of the affected local authorities

--to date, no electric utility company has submitted a company-developed emergency plan to FEMA for review and evaluation--note 3 key points:

1. in recent Congressional testimony, both FEMA and the NRC clearly indicated they firmly hold the opinion that there is no realistic set of circumstances within which a company-developed emergency response plan could work and, therefore, none could ever be approved--full and complete state/local support and participation are required for approval

2. under existing FEMA guidelines and practice, all FEMA reviews are triggered by a request from the state government involved (termed "350 response" process)--it would appear unlikely that many state governments would request such reviews over the objection of local authorities

3. the statutory ability of companies to submit proposed emergency plans for approval was created through amendment to Congress's bi-annual NRC Authorization Act--appears amendment may soon be eliminated--both the key House and Senate sponsors of the past amendment have stated that it was never their intent to provide companies with this capability and have indicated a desire to see this statutory capability terminated--current Authorization Act expires 9/30/83--amendment, unless specifically extended, expires with it.

-The financial risk confronting investors comes, by and large, at 2 levels:

--first, the reality is that the ability to create an approvable emergency response plan is very much a function of the desire of the region to create and support one--the desire to do so would seem to be of far greater import than the technical ability to do so--note several points:

a) this "reality" exposes every nuclear program to considerable (and potentially overwhelming) political and/or emotional influence

b) while in some jurisdictions only 1 local political body may be involved in the planning process, in others the full cooperation and endorsement of a multitude of political subdivisions may be required--in 1 case, some 51 state/local agencies are involved--based upon FEMA documents, the average number of state and local groups participating in the planning process is 6 per site--the reluctance of any 1 of these 6 to participate fully in the development of an emergency plan and, then, to endorse that plan could very easily lead to the disapproval of the proposed plan by FEMA/NRC--such a disapproval would prohibit a full power license being granted to a new nuclear unit and threaten the continuance of the existing operating license for a nuclear unit already in service

c) evidence would suggest that "anti-nuclear" groups will be undertaking a serious effort to gain control of these finer political subdivisions through the election process and, thereby, gain much enhanced control over the nuclear licensing/operating area

d) in many cases, one political subdivision essential to the planning process may, itself, have no economic exposure to the nuclear plant's operation (for instance, the county located across the river from a nuclear plant and served by a different electric company than that owning/operating the plant)--receives no economic benefit if it operates, no economic harm if it does not--such a group may be rather reluctant to accept willingly the physical/health/economic risks associated with an accident (no mater how remote) at that site--the risk/reward ratio simply does not encourage much support; indeed, it discourages support being provided

e) individual groups beyond those creating a plan within a region can be in a position to exert strong influence over the success of that plan--for example, municipal bus drivers needed to evacuate schools/hospitals can refuse to endorse a plan--in recent cases, even firemen have refused to support a proposed plan, refusing to confirm they would respond to a nuclear accident in the manner prescribed by the plan--can a plan be approvable without the support of bus drivers? firemen? are there alternative plans that can be created that don't require bus drivers? firemen?

f) the existence of an approved emergency plan is an on-going requirement --if, at some later point, a key participant in a previously approved plan rejects that plan for whatever reason (e.g., reappraisal of demographics, new local elections, heightened risk estimates due to accidents elsewhere, etc.), the NRC can respond by requiring an operating nuclear unit to shut down until a new plan is created, endorsed, submitted, reviewed, and approved--note a recent FEMA statement to Congress: "The State and the affected local jurisdictions must participate in an acceptable exercise with the utility each year as a condition of continued FEMA approval."--many NRC/Congressional members will argue that the absence of an approved plan requires the NRC to respond by suspending the operating license

--second, given the significant size and cost of a nuclear facility (particularly for a site with more than 1 nuclear unit), a company's capital investment in that facility can represent a major part of its total capital base--note several points:

a) there are many cases where an individual company's capital investment in a single nuclear facility (i.e. site) represents well over 1/2 of its total capital base

b) the inability of a company to bring a facility into full commercial service can act to restrict its ability to bring the related capital investment into rate base to be cash generating--many state regulatory jurisdictions prohibit by statute the inclusion of "non-used & useful" assets into rate base--many others are not philosophically or politically inclined to do so even when statutorally able--the inability to make such capital investments cash generating can exert severe financial strain--few companies can long withstand having only, say, 40¢ of every dollar of capital be cash generating when 100¢ of every dollar of capital is continually incurring cash finance expenses--such sharp capital imbalance, or misallocation, positions can easily lead to positions of what we've called "structural illiquidity"--that is, the cash flow coming from cash generating capital is not sufficient to cover in full the cash finance expense burden (interest and dividends) being incurred by total capital--places companies in extreme financial jeopardy

c) the inability to keep a unit in full commercial service due to the suspension of an operating license can result in the withdrawal of the related capital investment from cash generating rate base--the financial impact would then mirror consequences of point 'b', just above--any reluctance or delay by state regulators to allow the affected company to pass along through higher electric rates the higher replacement power charges to be incurred during the outage could well act to drain quickly any existing liquidity present within the system, materially worsening an already collapsing credit base

d) if it were to become the case that a nuclear facility could never operate due to an inability to create, for whatever reason, an approvable emergency response plan, the potential write-off of the related capital investment in that facility could seriously jar the financial base of the affected company--existing statutes in certain jurisdictions prohibit the recovery of the capital invested in terminated projects

e) one critical characteristic of a structurally illiquid company is the need for on-going access to the capital markets--this access would allow the internally insolvent company to cover the shortfall between internal cash flow and existing cash finance expenses--in effect, a "pyramid" is created--such a pyramid is successful only if it can be constantly supported by the addition of new funds from the outside--would the capital markets remain open to electric companies experiencing severe liquidity pressures due to some mixture of points 'b', 'c', or 'd', just above?

-10 questions:

--do these emergency planning risks as portrayed really exist?

-we'd argue, yes

--could these financial pressures really flow as portrayed from the failure of the emergency planning process?

-we'd argue, yes

--does the market clearly understand the nature of these risks with respect to nuclear projects already licensed and in operation?

-we'd argue, with perhaps 1 exception (Indian Point), no

-is Indian Point unique? we'd argue, no

--does the market clearly understand the nature of these risks with respect to nuclear projects now under construction?

-we'd argue, with certainly 1 exception (Shoreham), no

-is Shoreham unique? we'd argue, no

--are events pending near-term that could act to enhance the market's understanding and perception of these risks?

-we'd argue, yes

--are there changes that could occur in the planning requirements or the financial structures which would eliminate or greatly moderate these risks?

-we'd argue, yes

-are these changes likely to occur within the 1983/84 time frame?

-we'd argue, no

--is the market likely to begin to better evaluate and value these financial risks as 1983/84 proceeds and could such re-valuations prove to be substantial?

-we'd argue, yes.

-If this is all true, the next question is, how does one gage and evaluate the risks presented by individual companies?

--we believe the most appropriate, most direct, and the easiest way to measure the degree of risk is to measure the degree of capital concentration on a per site basis--in effect, determining the maximum capital imbalance exposure of each company

-remember, it's the capital imbalance likely to be created by a suspended or a never-issued operating license that exerts the major part of the financial pressures to be experienced

--note: when focusing on the problem in this per-site way, some of the best known "heavy nuclear" companies drop out of the higher risk categories due to the diversification of capital investment across a multitude of separate sites

-among those dropping from the higher risk group are Carolina PL, Commonwealth Ed, Duke P, and Virginia EP

--the following table lists those DLJ-rated companies having more than 1/3rd of their capital invested in any one nuclear site

-note, the tables at the end of this study examine in some detail the nuclear exposure (both in nature and degree) of each major electric company rated by DLJ.

Company	Maximum % One Site	Maximum Site	Maximum Site Fully Licensed (1)
PS/N Hamp	70%	Seabrook	No
Illincis P	55	Clinton	No
Long Island L	55	Shoreham	No
Pennsylvania PL	55	Susquehanna	No
Kansas GE	50	Wolf Creek	No
Metropolitan Ed	50	TMI	No (2)
Connecticut LP	45	Millstone	No
Kansas City PL	45	Wolf Creek	No
PS/Indiana	45	Marble Hill	No
Arizona PS	40	Palo Verde	No
Consumers P	40	Midland	No
Dallas PL	40	Comanche Peak	No
Louisiana PL	40	Grand Gulf	No
Philadelphia E	40	Limerick	No
Public Service EG	40	Hope Creek/Salem	No
S. Carolina EG	40	Summer	Yes
Union E	40	Callaway	No
Arkansas PL	35	ANO	Yes
Central PL	35	South Texas	No
Gulf States U	35	River Bend	No
Indiana & Michigan E	35	Cook	Yes
San Diego GE	35	San Onofre	No (3)
So. Calif. Ed.	35	San Onofre	No (3)

(1) 'No' indicates unit(s) at maximum-site still under construction--% can be expected to increase from current level shown.
(2) TMI--licenses currently suspended.
(3) Low Power license already approved.

-The most difficult question for us is, are we now required to make sweeping changes in our assigned credit ratings in an attempt to reflect the financial risks portrayed in this review?

--our answer is, no--while specific rating changes may well be warranted in upcoming months, across-the-board changes are not required today

--our long standing position has been:

-'nuclear' creates financial risks for companies exposed to it

-these risks are financially-based rather than safety-based--indeed, the financial risks exist even if one believes that there is no safety risk at all associated with nuclear--due to capital intensity of nuclear combined with basic structure/dynamics of the industry

--our judgement has been that the credit ratings assigned to electrics having 1/4 or more of their capital base exposed to nuclear must be discounted from the rating that would have been assigned based upon pure financial considerations--that is, the ratings should contain a discount to reflect the uncertainties the nuclear side presented to electric companies and their investors

-the rating discount would be larger if appreciably more than 1/4 of capital were exposed

--in effect, the discount was intended to be available to absorb the surprises that were likely to lie ahead of the industry--while the specifics of these surprises may have been unknowable to a large extent, their occurrance and the nature of their financial effect could be reasonably well foreseen

-our conclusion today is that the cushion built in to our credit ratings for those companies having the greater general degree of capital exposure to the nuclear side is sufficient to absorb the potential impacts of the emergency planning problems described in this review

-we would end with the caution that the risk of future changes for those more exposed companies is on the downside

-we fully expect financial jolt to be coming from the emergency planning area to be second in magnitude only to the TMI accident itself.

J. Christopher Young
212-902-2001

Table 1

	Nuclear Capital as % Total Capital Base			
	Total %	% With Operating License	% Without Operating License	Maximum % One Site
Alabama P	30%	30%	0%	30%
Arizona PS	40	0	40	40
Arkansas PL	35	35	0	35
Atlantic City E	25	15	10	20
Baltimore GE	20	20	0	20
Boston Ed	15	15	0	15
Carolina PL	50	20	30	30
C Maine P	30	5	25	20
Central PL	35	0	35	35
Cincinnati GE	25	0	25	25
Cleveland EI	45	10	35	25
Columbus & S Ohio E	25	0	25	25
Commonwealth Ed	65	20	45	20
Connecticut LP	50	15	35	45
Consolidated Ed	5	5	0	5
Consumers P	45	5	40	40
Dallas PL	40	0	40	40
Dayton PL	25	0	25	25
Delmarva PL	15	15	0	10
Detroit Ed	25	0	25	25
Duke P	45	20	25	30
Duquesne L	35	10	25	20
Florida P Corp	15	15	0	15
Florida PL	35	15	20	30
Georgia P	30	10	20	20
Gulf St U	35	0	35	35
Houston LP	15	0	15	15
Illinois P	55	0	55	55
Indiana & Mich E	35	35	0	35
Jersey Central PL	25	25	0	25
Kansas City PL	45	0	45	45
Kansas GE	50	0	50	50
Long Island L	65	0	65	55
Louisiana PL	75	0	75	40
Metropolitan Ed	50	50	0	50
New England P	40	5	35	20
New York St EG	15	0	15	15
Niagara Mo P	25	5	20	25
N States P	20	20	0	15
Ohio Ed	40	0	40	20
Pacific GE	25	0	25	25
Pacific PL	5	0	5	5
Pennsylvania E	20	20	0	20
Pennsylvania PL	55	35	20	55

	Nuclear Capital as % Total Capital Base			
	Total %	% With Operating License	% Without Operating License	Maximum % One Site
Philadelphia E	55%	15%	40%	40%
Portland Gen E	30	15	15	15
PS/Colorado	5	5	0	5
PS/Indiana	45	0	45	45
PS/New Hampshire	70	0	70	70
PS/New Mexico	25	0	25	25
PS EG	45	15	30	40
Puget Sound PL	15	0	15	10
Rochester GE	30	10	20	20
San Diego GE	35	20	15	35
South Carolina EG	40	40	0	40
S California Ed	45	20	25	35
Texas ES	30	0	30	30
Texas PL	25	0	25	25
Toledo Ed	60	20	40	25
Union E	40	0	40	40
Virginia EP	30	30	0	25
Wisconsin EP	5	5	0	5
Wisconsin PL	5	5	0	5
Wisconsin PS	5	5	0	5

Table 2

DLJ - Rated Electrics With No Nuclear Exposure

Appalachian P
C. Illinois L
C. Illinois PS
Gulf P
Idaho P
Indianapolis PL
Kansas PL
Kentucky U
Louisville GE
Minnesota PL
Monongahela P
Montana P
N. Indiana PS
Ohio P
Oklahoma GE
Potomac Ed
Potomac EP
PS/Oklahoma
Southwestern EP
Southwestern PS
Tampa E
Tucson EP
Utah PL
West Penn P

Table 3

Alabama P
Farley #1 (OL), #2 (OL)
28 Mi SE Dothan, Al.
30%

Arizona PS
Palo Verde #1, #2, #3
36 Mi W Phoeniz, Az.
40%

Arkansas PL
Arkansas Nuclear One, #1 (OL), #2 (OL)
6 Mi WNW Russellville, ArK.
35%

Atlantic City E
Peach Bottom #2 (OL), #3 (OL)
19 Mi S Lancaster, Pa.
5%
Salem #1 (OL), #2 (OL)
20 Mi S Wilmington, Del.
10%
Hope Creek #1
18 Mi SE Wilmington, Del.
10%

Baltimore GE
Calvert Cliffs #1 (OL), #2 (OL)
40 Mi S Annapolis, Md.
20%

Boston Ed
Pilgrim #1 (OL)
4 Mi SE Plymouth, Mass.
15%
Yankee Participations:
-Connecticut Yankee (OL)
-Yankee Rowe (OL)
- 0%

Carolina PL
Brunswick #1 (OL), #2 (OL)
3 Mi N Southport, N.C.
15%
Harris #1, #2
20 Mi SW Raleigh, N.C.
30%
Robinson #2 (OL)
5 Mi NW Hartsville, S.C.
5%

Central Maine P
- Millstone #3
  - 5 Mi SW New London, Ct.
  - 5%
- Seabrook #1, #2
  - 10 Mi S Portsmouth, N.H.
  - 20%
- Yankee Participations
  - -Connecticut Yankee (OL)
  - -Maine Yankee (OL)
  - -Vermont Yankee (OL)
  - -Yankee Rowe (OL)
    - -5%

Central PL
- South Texas Project #1, #2
  - 12 Mi SSW Bay City, Tx.
  - 35%

Cincinnati GE
- Zimmer #1
  - 24 Mi SE Cincinnati, Oh.
  - 25%

Cleveland EI
- Beaver Valley #2
  - 5 Mi E East Liverpool, Oh.
  - 10%
- Davis-Besse #1 (OL)
  - 21 Mi E Toledo, Oh.
  - 10%
- Perry #1, #2
  - 7 Mi NE Painesville, Oh.
  - 25%

Columbus & So. Ohio E
- Zimmer #1
  - 24 Mi SE Cincinnati, Oh.
  - 25%

Commonwealth Ed
- Braidwood #1, #2
  - 24 Mi SSW Joliet, Ill.
  - 15%
- Byron #1, #2
  - 17 Mi SW Rockford, Ill.
  - 20%
- Dresden #1 (OL), #2 (OL), #3 (OL)
  - 9 Mi E Morris, Ill.
  - 0%
- LaSalle #1 (OL), #2
  - 11 Mi SE Ottawa, Ill.
  - 20% (#1 = 10%; #2 = 10%)
- Quad-Cities #1 (OL), #2 (OL)
  - 20 Mi NE Moline, Ill.
  - 5%
- Zion #1 (OL), #2 (OL)
  - 40 Mi N Chicago, Ill.
  - 5%

Connecticut LP

- Millstone #1 (OL), #2 (OL), #3
  - 5 Mi SW New London, Ct.
  - 45% (#1 & #2 = 15%; #3 = 30%)
- Seabrook #1, #2
  - 10 Mi S Portsmouth, N.H.
  - 5%
- Yankee Participations
  - -Connecticut Yankee (OL)
  - -Maine Yankee (OL)
  - -Vermont Yankee (OL)
  - -Yankee Rowe (OL)
    - - 0%

Consolidated Ed

- Indian Point #1 (OL), #2 (OL)
  - 25 Mi N New York, N.Y.
  - 5%

Consumers P

- Midland #1, #2
  - SW boundary of Midland, Mich.
  - 40%
- Palisades (OL)
  - 5 Mi S South Haven, Mich.
  - 5%

Dallas PL

- Comanche Peak #1, #2
  - 4 Mi N Glen Rose, Tx.
  - 40%

Dayton PL

- Zimmer #1
  - 24 Mi SE Cincinnati, Oh.
  - 25%

Delmarva PL

- Peach Bottom #2 (OL), #3 (OL)
  - 19 Mi S Lancaster, Pa.
  - 5%
- Salem #1 (OL), #2 (OL)
  - 20 Mi S Wilmington, Del.
  - 10%

Detroit Ed

- Fermi #2
  - Laguna Beach, Mich.
  - 25%

Duke P
Catawba #1, #2
6 Mi NNW Rock Hill, S.C.
10%
McGuire #1 (OL), #2
17 Mi N Charlotte, N.C.
30% (#1 = 15%; #2 = 15%)
Oconee #1 (OL), #2 (OL), #3 (OL)
30 Mi W Greenville, S.C.
5%

Duquesne L
Beaver Valley #1 (OL), #2
5 Mi E East Liverpool, Oh.
20% (#1 = 10%; #2 = 10%)
Perry #1, #2
7 Mi NE Painesville, Oh.
15%

Florida P Corp.
Crystal River #1 (OL)
7 Mi NW Crystal River, Fl.
15%

Florida PL
St. Lucie #1 (OL), #2
12 Mi SE Ft. Pierce, Fl.
30% (#1 = 10%; #2 = 20%)
Turkey Point #3 (OL), #4 (OL)
25 Mi S Miami, Fl.
5%

Georgia P
Hatch #1 (OL), #2 (OL)
11 Mi N Baxley, Ga.
10%
Vogtle #1, #2
25 Mi SSE Augusta, Ga.
20%

Gulf States U
River Bend #1
24 Mi NNW Baton Rouge, La.
35%

Houston LP
South Texas Project #1, #2
12 Mi SSW Bay City, Tx.
15%

Illinois P
Clinton #1
6 Mi E Clinton, Ill.
55%

Indiana & Michigan E

- Cook #1 (OL), #2 (OL)
  - 11 Mi S Benton Harbor, Mich.
  - 35%

Jersey Central PL

- Oyster Creek #1 (OL)
  - 9 Mi S Toms River, N.J.
  - 10%
- Three Mile Island #1 (OL), #2 (OL)
  - 10 Mi SE Harrisburg, Pa.
  - 15%

Kansas City PL

- Wolf Creek #1
  - 3 Mi NE Burlington, Kan.
  - 45%

Kansas GE

- Wolf Creek #1
  - 3 Mi NE Burlington, Kan.
  - 50%

Long Island L

- Nine Mile Point #2
  - 8 Mi NE Oswego, N.Y.
  - 10%
- Shoreham #1
  - Brookhaven, N.Y.
  - 55%

Louisiana PL

- Grand Gulf #1, #2
  - 25 Mi S Vicksburg, Miss.
  - 40%*
    - * represents equity participation including New Orleans P.S.
- Waterford #3
  - 20 Mi W New Orleans, La.
  - 35%

Metropolitan Ed

- Three Mile Island #1 (OL), #2 (OL)
  - 10 Mi SE Harrisburg, Pa.
  - 50%

New England P

- Millstone #3
  - 5 Mi SW New London, Conn.
  - 15%
- Seabrook #1, #2
  - 10 Mi S Portsmouth, N.H.
  - 20%
- Yankee Participations
  - -Connecticut Yankee (OL)
  - -Maine Yankee (OL)
  - -Vermont Yankee (OL)
  - -Yankee Rowe (OL)
    - -5%

New York State EG
Nine Mile Point #2
8Mi NE Oswego, N.Y.
15%

Niagara Mohawk P
Nine Mile Point #1 (OL), #2
8 Mi NE Oswego, N.Y.
25% (#1 = 5%; #2 = 20%)

Northern States P
Monticello (OL)
30 Mi NW Minneapolis, Minn.
5%
Prairie Island #1 (OL), #2 (OL)
28 Mi SE Minneapolis, Minn.
15%

Ohio Ed
Beaver Valley #1 (OL), #2
5 Mi E East Liverpool, Oh.
20% (#1 = 10%; #2 = 10%)
Perry #1, #2
7 Mi NE Painesville, Oh.
20%

Pacific GE
Diablo Canyon #1, #2
12 Mi WSW San Luis Obisbo, Ca.
25%

Pacific PL
Skagit #1, #2
30 Mi NW Richland, Wa.
0%
Trojan #1 (OL)
42 Mi N Portland, Or.
0%
WPPSS #3
26 Mi W Olympia, Wa.
5%

Pennsylvania E
Three Mile Island #1 (OL), #2 (OL)
10 Mi SE Harrisburg, Pa.
20%

Pennsylvania PL
Susquehanna #1 (OL), #2
7 Mi NE Berwick, Pa.
55% (#1 = 35%; #2 = 20%)

Philadelphia E
- Limerick #1, #2
  - 35 Mi SW Philadelphia, Pa.
  - 40%
- Peach Bottom #2 (OL), #3 (OL)
  - 19 Mi S Lancaster, Pa.
  - 5%
- Salem #1 (OL), #2 (OL)
  - 20 Mi S Wilmington, Del.
  - 10%

Portland General E
- Skagit #1, #2
  - 30 Mi NW Richland, Wa.
  - 5%
- Trojan #1 (OL)
  - 42 Mi N Portland, Or.
  - 15%
- WPPSS #3
  - 26 Mi W Olympia, Wa.
  - 10%

PS Co./Colorado
- Fort St. Vrain (OL)
  - 35 Mi N Denver, Col.
  - 5%

PS Co./Indiana
- Marble Hill #1, #2
  - 10 Mi S Madison, Ind.
  - 45%

PS Co./New Hampshire
- Millstone #3
  - 5 Mi SW New London, Ct.
  - 0%
- Seabrook #1, #2
  - 10 Mi S Portsmouth, N.H.
  - 70%
- Yankee Participations
  - -Connecticut Yankee (OL)
  - -Maine Yankee (OL)
  - -Vermont Yankee (OL)
  - -Yankee Rowe (OL)
    - - 0%

PS Co./New Mexico
- Palo Verde #1, #2, #3
  - 36 Mi W Phoenix, Az.
  - 25%

Public Service EG
Hope Creek #1
18 Mi SE Wilmington, Del.
30%
Peach Bottom #2 (OL), #3 (OL)
19 Mi S Lancaster, Pa.
5%
Salem #1 (OL), #2 (OL)
20 Mi S Wilmington, Del.
10%

Puget Sound PL
Skagit #1, #2
30 Mi NW Richland, Wa.
10%
WPPSS #3
26 Mi W Olympia, Wa.
5%

Rochester GE
Ginna #1 (OL)
15 Mi NE Rochester, N.Y.
10%
Nine Mile Point #2
8 Mi NE Oswego, N.Y.
20%

San Diego GE
San Onofre #1 (OL), #2 (OL), #3
5 Mi S San Clemente, Ca.
35% (#1 & #2 = 20%; #3 = 15%)

South Carolina EG
Summer #1 (OL)
26 Mi NW Columbia, S.C.
40%

Southern California Ed
Palo Verde #1, #2, #3
36 Mi W Phoenix, Az.
10%
San Onofre #1 (OL), #2 (OL), #3
5 Mi S San Clemente, Ca.
35% (#1 & #2 = 20%; #3 - 15%)

Texas ES
Comanche Peak #1, #2
4 Mi N Glen Rose, Tx.
30%

Texas PL
Comanche Peak #1, #2
4 Mi N Glen Rose, Tx.
25%

Toledo Ed
Beaver Valley #2
5 Mi E East Liverpool, Oh.
15%
Davis-Besse #1 (OL)
21 Mi E Toledo, Oh.
20%
Perry #1, #2
7 Mi NE Painesville, Oh.
25%

Union E
Callaway #1
10 Mi SE Fulton, Mo.
40%

Virginia EP
North Anna #1 (OL), #2 (OL)
40 Mi NW Richmond, Va.
25%
Surry #1 (OL), #2 (OL)
17 Mi NW Newport News, Va.
5%

Wisconsin EP
Point Beach #1 (OL), #2 (OL)
15 Mi N Manitowoc, Wisc.
5%

Wisconsin PL
Kewaunee (OL)
27 Mi E Green Bay, Wisc.
5%

Wisconsin PS
Kewaunee (OL)
27 Mi E Green Bay, Wisc.
5%

SAPL
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SAPL COMMENTS TO THE SENATE COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS REGARDING EMERGENCY PLANNING FOR THE AREA SURROUNDING THE SEABROOK NUCLEAR POWER PLANT

April 1983

SAPL would like to call to the attention of the members of the Senate Committee on Environment and Public Works the serious problems attendant upon emergency planning at the Seabrook Nuclear Power Plant site.

Seabrook is arguably the worst-sited nuclear plant in the entire country. During the summer tourist season, Seabrook has the densest "near-in" population of any site. The 1983 permanent resident population within 0 - 10 miles is, according to the Final Environmental Statement for Seabrook Station, 99,900. The NRC staff estimates that an additional 130,998 seasonal residents, overnight visitors and daily transients will add themselves to this permanent population on a 1983 peak weekend day during the tourist season. SAPL remains unconvinced that the NRC figures are high enough, but assuming that their estimates are correct, the total comes to 230,898.

The vast majority of the people visiting the area concentrate themselves in an area within 2 to 3 miles of the reactors. The area is served by an exceedingly restrictive road network upon which traffic jams are normal occurrences rather than exceptional ones.

The lack of availability of sheltering is a matter of very serious concern. Most of the people are openly exposed on the beaches and the buildings that do exist in the area of the beaches are neither capacious enough to shelter them all nor have enough mass to afford adequate radiological protection. The beach houses tend not to be characterized by the brick or stone construction and solid foundations that would

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provide significant dose reduction to their inhabitants.

The document "Dynamic Evacuation Analyses: Independent Assessments of Evacuation Times from the Plume Exposure Pathway Emergency Planning Zones of Twelve Nuclear Power Stations", FEMA-REP-3, February 1981, shows at Table I-1 that Seabrook has the longest range of evacuation times of any of the 12 highest population density sites in the country. The upper range evacuation time estimate for Seabrook is 15 hours. Given the problem characteristics of the area surrounding the Seabrook site, SAPL is not thoroughly convinced that this upper range estimate is high enough. Many evacuees will be forced to travel in a direction that is generally westerly and toward the reactors before they are able to gain access to the major escape routes which run in a north to south direction: routes 1A, 1 and I-95. NUREG-0396 reveals that radiation can escape from a nuclear plant within as little as ½ hour after the initiation of an accident. It also reveals at page 19 that the shorter release times are associated with the more severe "Reactor Safety Study" accident sequences.

On July 13, 1982, the NRC promulgated a final rule on emergency planning at 47 F.R. 30232 which appears to allow the NRC to resolve offsite emergency planning issues without litigating them in the adjudicatory licensing hearings, and which clearly exempts evacuation exercises from litigation in the hearings. The NRC is inappropriately and very dangerously retreating from its public safety commitments made in the aftermath of the Three Mile Island accident.

SAPL would ask that the Committee on Environment and Public Works press the NRC to preserve its public safety commitments and allow litigation on both emergency planning issues and the results of emergency planning exercises in the adjudicatory licensing hearings. SAPL does not understand how the NRC can still pretend to uphold a "remote siting" policy, but the agency does make that claim. There is nothing in the least remote about the Seabrook site.

SAPL would urge the Committee to expand the scope of its investigation into emergency planning issues. The public trust is being very seriously compromised as matters currently stand.

Respectfully submitted,

Jane Doughty

Jane Doughty
Field Director for SAPL

SIA
SECURITIES INDUSTRY ASSOCIATION
120 Broadway, New York, N.Y. 10271 · (212) 608-1500

May 20, 1983

The Honorable Alan K. Simpson
Chairman, Subcommittee on Nuclear
  Regulation
SH 709
Washington, D.C. 20510

Re: Hearings on Radiation Emergency Response Plans
Subcommittee on Nuclear Regulation

Dear Senator Simpson:

The SIA Regulated Industries Committee acts on behalf of firms representing the millions of individual and institutional investors in utility companies in the United States. The objective of the Committee is to provide a vehicle for the securities industry to address the needs and issues of utility investors. (Please see attached Appendix A for a list of the members of the SIA Regulated Industries Committee.) The Securities Industry Association (SIA) represents securities brokers and dealers, investment banking firms, bond departments of commercial banks and investment management companies through this country and in Canada and, indirectly, the millions of individuals who buy and sell securities every year. Our membership handles about 90% of all securities business in North America. Our 500 members organizations are centrally involved in supplying the capital needs of industry and governmental bodies in the United States.

As representatives of the Regulated Industries Committee of the Securities Industry Association, we are very concerned about the potential economic consequences of the current unresolved debate in the area of nuclear emergency response planning. The growing uncertainty with regard to emergency planning is creating considerable doubt as to the ability of New York utilities to access the securities markets on reasonable terms. While the most immediate difficulties are in New York, it will obviously spread to other states with nuclear power facilities.

At a minimum, nonaction will cause 1) delays in the start-up of new units, or 2) temporary shut-downs of operating units. In either instance, there will be additional direct and indirect costs which will have to be borne by the ratepayers and investors of the affected utilities. More ominous is the possibility of huge write offs due to cancellation or abandonment of nuclear generating facilities and the substantial increases in fuel costs to be passed on the utility consumers.

To illustrate the actual and potential economic consequences of such actions, consider the recent experience of Long Island Lighting Company (LILCO). LILCO has been engaged for over ten years in the construction of the 809 megawatt Shoreham nuclear generating station. Due to high inflation, high interest rates, and licensing delays, the Shoreham construction program has exerted financial pressures on LILCO much more severe than originally contemplated by the Company or the New York Public Service Commission. Consequently, LILCO's financial posture has deteriorated and will continue to do so until the Shoreham plant becomes operational. Both Moody's and Standard & Poor's have reduced the ratings on the Company's bonds and preferred equity securities, which in turn, caused further increases in the Company's financing costs and has forced the Company to sell large amounts of common stock below book value.

The Shoreham project has received all the necessary permits and approvals from regulatory bodies. At a cost of at least $3.2 billion, it is now within months of physical completion. Emergency Response Plans have been developed through the efforts of Suffolk County and Long Island Lighting, but at the 11th hour, the county is now taking the position that a satisfactory Emergency Response Plan cannot be developed. Such action will result in additional delays which will substantially increase Shorham expenditures ($40 million per month of delay) and further weaken LILCO's financial condition. While it is probable that Shoreham will ultimately operate, one must also contemplate the possibility that LILCO could never receive an operating license for the facility. In that event, the Company's ratepayers would be denied the possibility of receiving up to as much as $15 billion in fuel savings which would be expected to accrue over 40 years of operation . Furthermore, unless the state PSC authorized recovery of $3 billion from LILCO's ratepayers, the Company's financial viability would be irreparably destroyed. It should be pointed out that LILCO's investment in Shoreham is larger than the total investment in the rest of the Company. In addition, there would also be a loss of a substantial amount in investment tax credits associated with the construction of the plant. On a national basis, nuclear utilities' ability to finance would be severely restricted if Shoreham was to be abandoned. Obviously, this situation is untenable if the electric utility industry is to continue to provide reliable electric service and reduce this nation's dependence on foreign oil.

In conclusion, while our perception is that the Shoreham plant and other nuclear generating facilities across the country do not present any unsolvable problems with respect to emergency response plans, we do not personally possess all the necessary credentials to render such a technical decision. Neither, however, do all local political bodies, such as the Suffolk Country legislature. Ideally, electric utilities and their state and local authorities should work together to come up with mutually satisfactory plans. But, in the final analysis, the Federal Government and the Nuclear Regulatory Commission should set the standards, make the evaluations, and be prepared to give final approval to plans on a timely basis.

Sincerely yours

John M. Kingsland

JMK:sng

John M. Kingsland
Chairman,
Regulated Industries Committee of the
Securities Industry Association

1983 REGULATED INDUSTRIES COMMITTEE

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ERRATA

Nuclear Emergency Planning

The above hearing before the Senate Committee on Environment and Public Works was numbered incorrectly.

The correct designation is S. Hrg. 98-222.

S321-22